THE SOCIAL IMPACT OF AGRIBUSINESS:
A CASE STUDY OF ASPARAGUS CANNING IN PERU

by

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PREFACE

What are the social impacts, intended and unintended, of private sector agribusiness growth? How are the rural poor--agribusiness employees, growers, farm workers, and their families--affected by this growth? What social and organizational agribusiness characteristics tended to shape the ratio of positive to negative social impacts? How, in fact, can subtle unintended social impacts be identified and evaluated?

Reflecting its continuing concern with these issues, the Development Programs office of the Bureau for Latin America and the Caribbean, Agency for International Development contracted this research. Reported here is a case study of the social impact of one agribusiness firm, Agroindustria del Santa, funded by FRAI (Fondo de Reserva de Agroindustria); FRAI is a program of the Central Bank of Peru largely funded with a 15 million dollar loan from AID through its Peru Rural Development Agribusiness Project.

At the time of this research, FRAI had funded 103 agribusines projects throughout Peru. An examination was made of the loan records of all these projects, which include social impact projections, to determine the agribusiness project which would most suitably serve for this case study. Three criteria were used to make the final selection of the Agroindustrias del Santa asparagus plant: (1) representativeness of the project, both as an indicator of the overall FRAI program and as a case

from which generalizations can be made to similar agribusiness projects elsewhere; (2) the size and organizational form of the project, to ensure that it had many direct contacts with the rural poor, making social impact evaluation easier than cases where the impact is only transmitted indirectly through market mechanisms or intermediary institutions; and (3) the length of time since initiation of the project, to ensure that planning and construction had been completed and normal operations at least begun.

Agroindustria del Santa is a new subsidiary of the Grupo Bertelo, a Lima-based Peruvian conglomerate. Agroindustria del Santa was created to process and export canned asparagus, through construction of a new canning plant in the Santa province of Ancash department and through the introduction of asparagus as a new crop to farmers in that area. The company began contracting for asparagus plantings in 1978; its processing plant began receiving asparagus in November, 1979.

Methods of the Research

To put together this case study of the social impact of the asparagus company, separate research efforts were carried out in three sites in northern coastal Peru: the town of Santa, site of the processing plant and home to most of its employees; recently irrigated and colonized areas of the Santa Valley (Lacramarca, Cascajal and Tangay), the original areas of the company's small farmer asparagus contracts; and the valley of Viru, Peru's only established asparagus-producing center and the site where the company now purchases an increasing proportion of its raw material. The research was designed to study the social impact of the company on three

different groups of the rural poor: plant employees and their families, small farm families, and agricultural workers and their families.

The results reported here are based on a variety of research activities that permit the accumulation of data of various types from various sources. This diversity of data types and sources, technically called "methodological triangulation," should theoretically increase the validity of the findings through the cross-verification that it makes possible. In each site and with each target group, research began with observation of the activities of the asparagus company and of relationships between the company and its employees or its growers. Then the research entered into a phase of in-depth interviews with informants and systematic observation of the key activities that had been identified. Repeated extensive interviews were conducted with company management and personnel, who also made available a variety of useful company records. Three separate specialized questionnaires were designed and tested, and simple, small-scale surveys were carried out among growers, farm workers, and plant employees. The grower sample was area-based, including all 50 harvesting farmers (who were easier to find) located within a 45-minute radius of the company's Santa and Viru collection centers. The farm worker sample consisted of 41 people employed on these growers' farms. Such sampling procedures were dictated by the financial constraints of the research. In the town of Santa, however, it was possible to carry out a truly random selection of 43 respondents from among the plant employees residing in the greater Santa area.

While this data collection continued, the analysis of the data was already begun and some tentative conclusions reached. Such simultaneous collection and analysis of data permits that further data may be collected

as the analysis demands and that the tentative conclusions can be verified if necessary with new data sources. Toward that end, tentative conclusions were presented to company field employees, and to groups of informants from among the growers and plant employees. Their responses were noted and incorporated into the data base that underlies this report. Throughout the research, the most full and helpful cooperation was extended by company managers and employees in the plant, its agricultural field office in Chimbote, and its two collection centers in Viru and Cambio Puente. Likewise, members and officers of the Asparagus Growers' Association were most generous and helpful with the time and effort they put into helping the research. Such cooperation and good relations were made initially easier through the helpful facilitation of the FRAI office in Lima, under the direction of Dr. Carlos Klinge.

The Researchers

The contractor and chief researcher on this project is Dr. Ken Kusterer, sociologist and co-author of previous AID social impact evaluations, most recently "The Social Impact of Agribusiness: A Case Study of ALCOSA in Guatemala" (January, 1981). He has a broad experience in the investigation of social aspects of the efforts of institutions and enterprises involved in economic development. His educational background includes certificates in agriculture and agribusiness management, bachelors and masters degrees in sociology and Latin American studies, and a doctorate in sociology. He is currently Associate Professor of sociology at American University in Washington, D.C.

Assisting in this research was Ms. Amparo Noriega Rios. Educated as a Farm Technician, she is a life-long resident of Santa. Active in various parish-sponsored community projects, she had previously worked as a survey interviewer for a church-sponsored survey of the town's social service needs. In the present research project, she made observations in the plant and the collection centers, conducted most of the survey interviews with plant employees, and participated as well in survey interviews with some growers and farm workers.

The Organization of This Report

The executive summary (Chapter I) and statement of findings (Chapter II) are followed in Chapter III by a description of the operation of Agro-industria del Santa, both its processing plant and its outgrower relations field offices. A description of the social effects of the company cannot make much sense to the reader without a background knowledge of exactly what the company has done to cause such effects. Following this description, Chapters IV through VIII describe the social impact of the asparagus company on various portions of the rural poor affected by its operations. Chapter IV describes the impact on the growers of the company's original area of operations, the Santa Valley. Chapter V describes the new outgrower program and its somewhat contrasting social consequences in the valley of Viru. Chapter VI presents the impact of the company on the Amauta Agricultural Production Cooperative, one of the four collective farms contracted to produce asparagus for the company. Chapter VII describes the social impact of asparagus cultivation on the farm laborers employed by the company's outgrowers. Chapter VIII presents the impact of the company on those women of Santa who have become its production

employees. Finally, Chapter IX discusses some of the implications of these findings for the impact-maximizing management and evaluation of agribusiness projects.

CHAPTER I

EXECUTIVE SUMMARY

This case study of the intended and unintended social impacts of an agribusiness project funded by A.I.D.'s Peru Rural Development Agribusiness Fund is based on field research conducted from May to August 1981 in the Santa Province of Peru's northern coast. This loan partially financed the establishment of Agroindustrias del Santa, a new subsidiary of the Lima-based Bertelo Group. The new company offered production credit and purchasing contracts to establish the planting of asparagus among small farmers and collective farms in the Santa Valley, to serve as a raw material source for the new asparagus canning plant which it constructed in Santa, a small town north of the city of Chimbote. At the time of the research, the plant employed an average of 432 production workers to process ten tons per day of asparagus. Raw materials were supplied by 102 contracted outgrowers in the Santa Valley, four collective farms, and about 80 established asparagus farmers in the Viru Valley to the north. Individual outgrowers all operate small farms; about half rely primarily on family labor, while the rest depend exclusively on paid farm workers. In addition to family members, these outgrowers provide work to a daily average of 520 farm laborers. The first asparagus was planted in 1978, and the plant commenced production in November, 1979. The subsidiary has not so far shown a profit, and continues to be the worst economic performer in the Bertelo Group.

Social Impact: Farmers and Farm Workers

Small farmers in the newly colonized irrigation districts of the original Santa Valley project area received massive economic benefits from the asparagus program. Settled on their desert plots, but lacking the capital to grade, irrigate, or plant their land, farmers who signed asparagus contracts found their desperate situation transformed almost overnight. With heavy equipment and its own labor crews the company graded, fertilized, and planted these farms to asparagus; then it provided biweekly payments for the first three years of cultivation, until the perennial crop should become profitable. But new economic problems soon arose. These high expenses were charged to the farmer, along with a governmentally set annual rate of interest, which rose to almost 50 percent. Average yields were only 40 percent of the five metric tons per hectare anticipated in the contract, too low to repay the debt, let alone turn a profit. Nor was the company making a profit. Carrying a field staff of fifteen technicians to provide massive technical assistance to only 106 widely dispersed small farmers, the program as originally conceived required yields of at least four metric tons per hectare to sustain itself economically.

The original economic benefits received by Santa Valley small farmers are thus threatened by their overhanging debt and the unprofitably low yields. Almost all of the outgrowers interviewed expressed frustration and dissatisfaction with the project. Such dissatisfaction is the result of low yields, rising debts, unrealistic promises by the original project promoter, evasiveness of company respresentatives regarding future plans, and "agribusiness normalization." This last term refers to an apparently universal tendency of new agribusiness projects, which always begin with the company following promotional policies designed to attract growers and then reverting, once the new sources of supply have been assured, to a tougher and more profit-oriented mode of operation. During this process, growers who were very highly satisfied during the initial honeymoon phase are almost certain to become less satisfied later. A result of outgrower dissatisfaction in this project has been the formation of the Asparagus Growers' Association, a collective bargaining unit which has benefited both the company and the growers.

Several important social impacts of the project result from the labor intensiveness of asparagus. The crop requires much more labor than any other locally grown cultivant, and the company's new system of year-around, twice-daily harvests requires even more labor, almost double that of the asparagus cultivation system traditional to Viru. Asparagus labor requirements are qualitatively as well as quantitatively distinct, since it is a lighter task, more even distributed throughout the year. As a result, underemployment has been eliminated on family farms; indeed, two-thirds of such farms must now hire outside labor because family labor resources are insufficient to provide the workers that the crop requires. Male family farmers thus are provided with a steadier and more productive workload than before they joined the project, but females in the family take on a "double shift" because their household workloads have not been significantly reduced to compensate for their five or six hours of daily labor in the asparagus fields.

The crop provides more employment to farm workers, and has the potential for changing the nature of their employment. Since asparagus work is relatively nonseasonal, such jobs have the potential to become the kind of stable full-time employment so avidly desired by the farm workers who were interviewed. Though it is still cheaper for farmers to hire short-time seasonal employees, thus avoiding the legal obligation of paying social benefits equivalent to 53 percent of the wage rate, it becomes increasingly difficult and inconvenient to continue such employment practices in the face of the asparagus crop's year-round daily work requirements. Similarly, an incipient tendency was observed to hire female farm workers, ostensibly because of the lesser physical strength required for asparagus cultivation tasks.

In Viru, the company works with established asparagus growers and adheres more closely to local norms already established by pre-existing asparagus processors. The most important macroimpact of the company's entry into this production area has been to salvage a dying agribusiness industry. The two surviving older asparagus canners were at the point of collapse, unable to offer harvest financing or adequately inflation-adjusted prices. Asparagus yields in acreage were declining. The new

company has offered harvest financing and greatly increased prices, revivifying the industry. The lives of small asparagus growers in Viru have been less transformed than the lives of Santa growers who owe their very farms to the company; but the program in Viru is profitable for both the company and the farmers, so that the Viru model, though less ambitious in its social impact, must be considered the more workable agribusiness system.

Apart from the impact of its outgrower operation, the processing plant itself has had an impact on the small town of Santa where it is located and on the lives of its 432 production employees, 90 percent of them women. The asparagus cannery is the first large-scale employer in this agricultural town, although many townspeople had for many years commuted to jobs in the fish canning plants of nearby Coishco or to urban jobs in Chimbote. The plant opened its doors during a period of prolonged economic depression and changes in government policy, which had resulted in the lost of the town's previously available stable employment, as farm laborers on land-reform collectives or as employees in bureaucratic agencies. As a result of the declining economic context, aggregate employment in the town has not increased; the plant has served only to maintain an employment status quo that otherwise would have sharply declined. But the plant does represent a shift from public sector to private sector employment, and from predominantly male to predominantly female employment. Both changes are locally controversial.

The social impact of the plant on its working women depends on the work and family background of the individual employee. Basically, three distinct groups were detected: 1) youths with no previous work experience; 2) experienced factory workers previously employed in the fish canning plants of Coishco; 3) older first-time factory workers coming into the plant from more traditional women's work and household roles. Experienced workers and their families were least affected by their new employment, since it signified little change in their previous work and household roles. As a group, they were most dissatisfied with the pay and working conditions at the plant, and undoubtedly provided the informal leadership for the sit-down strike of December, 1981.

Youths were most likely to report an improved economic standard of living. At the time of the research, it required 2.3 minimum wages to support an average household of 7 persons. Only a few of the households surveyed achieved such levels of income, most of them households where the youthful employees represent a third or fourth wage earner. Some youthful workers reported an increased independence and autonomy, the result of working away from home and earning their own wages.

Older first-time workers tended to have the lowest household incomes, the greatest domestic problems in adjusting to the employee's absence from home, the greatest expressed satisfaction with the work, and the highest increase in feelings of self esteem. For them, factory employment has brought increased independence and self respect, an improved but still inadequate level of household income, and domestic difficulties resulting from their inability to find suitable arrangements for child care and household work.

CHAPTER II

STATEMENT OF FINDINGS

Description of the Research

This is a case study of the "intended and unintended" social impacts of one Peruvian agribusiness firm, partially funded by AID's Peru Rural Development Agribusiness Fund. Research was conducted by Dr. Ken Kusterer, Associate Professor of Sociology at American University and author of previous AID social impact studies of agribusiness projects, and Amparo Noriega Rios, an experienced research assistant and resident of the impact area. From May to August 1981, research was conducted at the plant site, the town of Santa and two agricultural areas, the Santa and Viru Valleys. Research techniques included observation, in-depth interviews with informants, analysis of company records, and 134 survey interviews with growers, farm workers, and plant employees.

Description of the Agribusiness Company

After reviewing all agribusiness funded loans, a decision was made to evaluate the social impact of a new asparagus canning plant in the Province of Santa on the north coast of Peru. The plant was constructed by Agroindustrias del Santa, a new subsidiary of the Bertelo Group, a Lima-based conglomerate with subsidiaries in banking, construction, mining, transport, fisheries, and computer services. The new subsidiary, formed to process and export canned white asparagus, represents the group's first

entry into the agribusiness field. The company constructed a canning plant in the town of Santa, presently employing 450 people and processing ten tons a day of asparagus. It pioneered the plantation of asparagus in the Santa Valley, and also operates an outgrower program in the Viru Valley, Peru's only established asparagus production zone.

The asparagus project is not yet a profitable one. Having taken the longest of any Bertelo Group operation to move into the black, it is considered the poorest performer in the group. In addition to initial operating problems of organization, cost-control, and raw material supplies, the company has not yet found steady markets for its product. In the first half of 1981, for instance, only 56 percent of the production was actually sold.

Organizationally, the operation involves two separate subsidiaries, the processing plant itself and ASAGRO (Asesoramientos Agroindustriales), which is responsible for raw material supply and administers the outgrower programs. The company grows no asparagus of its own, purchasing its entire input from small farmers, collectively farmed cooperatives, and a very few medium sized farmers in Viru.

The Santa Valley Asparagus Growers

Background. The original area of the asparagus program's operation was the Santa Valley, on Peru's north coast. The company signed contracts with 106 farmers widely scattered in recently colonized new irrigation areas of the valley. Two groups of farmers signed contracts: family farmers, who depend primarily on family labor; and farm entrepreneurs, who

oversee hired labor to work their farms. The median size of these farms is 10 hectares for family farmers, 14 hectares for farm entrepreneurs. About three-quarters of the land area of these farms is cultivated, about half in asparagus.

ASAGRO's Grower Program. The company began operations with a unique outgrower system, which promised great benefits to small farmer participants, but which proved economically unsound. Although the original farmers continued to work within a modified version of the original plan, no new farmers have been brought into this program since the company changed management in March 1980.

The Original Program. The company financed 100 percent of all costs of production: inputs, farm equipment rental, and even labor costs. Farmers received biweekly loans to cover all such costs. Such loans carry an interest, currently 47.5 percent. Indebtedness rises until the third harvest, 30-36 months after transplanting, and should decline after that as the crop becomes profitable. In the very beginning, the company also provided the labor itself, by means of work crews administered by company agronomists. Little attention was paid to costs, financial record keeping was loose, more acreage and more work was claimed on paper than seems to have actually occurred. There is some evidence of embezzlement, in the form of loans to nonexistent farm entities, and fraud, in the form of farmers' accounts being charged with company expenses that apparently were never incurred. Administrative oversight was loose, cost controls nonexistent. Farmers were little conscious of the mounting debts and uninformed of their exact amounts.

The Present Program. New management was installed by the head office in Lima to bring the program under control. A highly bureaucratised staff of 20 now tightly administers all aspects of the program. Biweekly loans are still made, but every effort is made to keep them to a minimum, and to prepare reasonable but specific plans for the repayment of debts. Six agronomists and nine farm technicians now administer a tight system of technical assistance, experimentation, crop monitoring, cost control, production projection, and harvest organization.

Small pick-up trucks operated by subcontractors pass by harvesting farms three times daily to weigh the asparagus, verify its proper quality classification, and make the purchase. Most technical assistance recommendations have been modified, to reduce costs, and a new system has been introduced which divides each grower's fields into three plots harvested serially, so that each grower will be producing asparagus and earning income throughout the year.

Impact: Transforming Farms and Farmers. Before enrolling in the ASAGRO program, neither family farmers nor entrepreneurs had been able to put together enough capital to plant, or even grade and level (necessary for gravity-fed irrigation), their desert plots. Struggling to hold onto their land, they survived from occasional off-farm employment and the produce of whatever small portion of their farm was naturally level. The company brought in heavy equipment, leveled these desert sands, trucked in tons of organic material, and transplanted the asparagus. Overnight, land that did not and could not grow anything became a cash crop farm, and from that day on, farmers were paid a biweekly loan, to permit them to forego off-farm employment and take care of their new asparagus.

Impact: Access to Farm Credit. Until the arrival of the asparagus company, these farmers had no access to credit of any kind, let alone the longer-term financing necessary to colonize new land. But the company's system of providing 100 percent financing through biweekly wage-like loans has proven unworkable. These periodic payments, though actually high-interest loans, present the appearance to the farmers of compensation for work already put in. The farmer is only half aware of the risk he is taking; when productivity problems arise, as has been the case in the Santa Valley, the mounting size of these too-easily assumed debts causes great fear, resentment, and anger.

Impact: Greater Labor Intensiveness, Reduced Underemployment. Asparagus, especially white asparagus harvested twice a day as ASAGRO uniquely requires, is by far a more labor intensive crop than any other common to the area--corn, beans, sweet potatoes, alfalfa, or potatoes. Partially cultivated family farms that used to get along on thirty days of adult labor per year supplemented by the daily farm chores of children, now productively utilize the full-time efforts of all the available men, as well as all the disposable time of women and school aged children. Two-thirds of family farmers, in fact, find their family labor resources insufficient and are forced to hire outside labor on a daily basis.

Impact: Greatly Increased Technical Assistance. Obviously, these 106 growers receive massive amounts of technical assistance from the company's fifteen agronomists and farm technicians. This kind of technical assistance goes far beyond anything that was previously available to these

generally inexperienced farmers. No more than two weeks pass without a consultation between agronomist and grower; most consult far more often.

Grower Dissatisfaction. Despite the benefits so far described, most growers are highly dissatisfied with the program, angrily denouncing the company's many field employees as an army of parasites living off the growers' productive labor. The important causes of this dissatisfaction include: low yields, rising debts, over promotion, company evasiveness, and "agribusiness normalization," explained below.

Low Yields. Compared to yields of 5,000 kgs. per hectare "promised" in the original company contracts, and 6,000 kgs./ha. usually obtained by Peru's original pre-land reform asparagus growers, the Santa Valley grower's average is less than 2,000 kgs./ha. At least 3,000 kgs./ha. are needed to break even, according to farmers; according to company agronomists, 4,000 kgs./ha. represents the productivity point at which asparagus becomes more profitable than other local alternatives. These low yields are caused by the very poor quality of the recently desert soil, an infestation of "mealy bug," poor cultivation practices (most of them attributable to recommendations made by the company's original agronomists), and some transplantings of weak seedlings too far apart. Through experimentation, the company's present agronomists have developed methods they believe will control the "mealy bug," improve cultivation practices, and especially reduce the cost of inputs.

Rising Debts. Because of increased interest rates (set by the government agrarian development bank), and because of the unexpectedly low

yields, debts are not declining as scheduled. The nominal level of total farm debt is increasing steadily; even farmers presently in full production find themselves unable to reduce their nominal debt level. Because of Peru's inflation, a nominally static debt is actually a 40 percent per year reduction, but farmers are not accustomed to thinking in these terms. For them, such irreducible debts represent the threat of permanent dependence, arousing great fear and anger. The Asparagus Growers' Association has demanded the forgiveness of some of this debt, and local company management has concurred that it should absorb some of this debt as a cost of promotion and compensation for past company mistakes, but so far no decision on the issue has come down from company headquarters in Lima.

Over-Promotion. Santa Valley farmers have no experience with asparagus. They can only base their expectations on statements and promises from company promoters and agronomists, who went so far as to actually write in the original contract that the growers would be harvesting 5,000 kgs. per hectare. Part of farmer dissatisfaction is due to the large discrepancy between such promises and the present level of achievement.

Company Evasiveness. Company representatives often cannot respond satisfactorily to grower initiatives, because there is so much about which they must keep silent: possible previous fraud, company expectations that 50 percent of these growers will eventually turn to other crops because the asparagus plantations on their lands can never be made sufficiently profitable, and the decision to phase out all small growers too distantly separated from the few incipient nuclei of asparagus production. Although

growers remain unaware of all this, they are often dissatisfied by company actions which growers cannot understand because they are based on factors which farmers know nothing about.

Agribusiness Normalization. The grower dissatisfaction is in part simply a result of an apparently universal tendency of new agribusiness projects. Such programs always begin with the company following promotional policies (in pricing, technical assistance, quality standards, etc.) designed to attract growers. After an initial honeymoon period during which the processor has become assured of its new source of supply, the company returns to a more normal mode of operation with its policies more determined by marketing requirements and profitability criteria. Because of this agribusiness normalization phenomenon, growers will always appear more satisfied in an early evaluation than they would appear if the same evaluator were to return a few years later. In this case, since agribusiness normalization occurred abruptly with the change of management, discontent probably arose more quickly and more sharply than it might have, had the transition been more gradual.

Impact: The Founding of the Asparagus Growers' Association. Shortly after the plant began operation, the growers organized themselves to bargain collectively with the company. In this bargaining process, the asparagus price has risen considerably (but some regular price rises would have occurred any way, to keep pace with Peru's rapidly rising inflation), and the association agreed to a 20 percent reduction in the length of the asparagus spears which the company would purchase. As the company acknowledges, the association has been mutually beneficial, since it legitimizes grower concessions almost as well as it represents grower demands.

In this case, the association also serves the unintended function of social integration in this newly colonized area, where family farmers, unless they are members of evangelical groups, have few other social connections to tie them to each other and to build a community in their new place of residence.

Impact: Turning Family Farmers into Farm Employers. Because of the already-discussed labor intensiveness of asparagus cultivation, most family farmers have had to take on daily outside labor, an average of two workers per farm. This transforms the nature of the farm enterprise, starting poor farmers who recently could barely provide for their own families down the road to becoming independent small businessmen whose enterprise supports other families as well as their own.

Impact: Changes in the Role of Farm Women. Unlike family farm men, who have given up outside labor to do lighter work in the asparagus fields, family farm women find their work load considerably increased by their farm's new crop. The amount of time needed for household tasks has been reduced very little, and most must now spend five or six hours a day in the asparagus fields as well. Not only are they working harder, but they are probably more materially dependent on their spouses than previously, since they no longer sell animals or farm produce in the market. Although few of these women had any but the most minor involvement in such income-producing sidelines, they now have no independent source of income at all. Considering for the moment ASAGRO loans as wages, as the farmers do, then it is true that women's work in the asparagus fields brings much greater income

into the family than anything they ever did previously. But income to the family and income to the woman herself may not be exactly the same thing, since it is her spouse who goes into town and picks up the ASAGRO check. Though no women were found to be materially worse off than before, they are now materially, instead of only ideologically, absolutely dependent on their fathers and husbands.

The Viru Valley Asparagus Growers

Background. The Viru Valley, 80 desert miles north of Santa, is the original home of Peruvian asparagus production. The 25 year-old industry, buffeted by land reform, expropriation of the original canning plant, government de-emphasis of luxury export crops, and several years of drought, by 1980 was at the point of collapse. The two surviving processors could not offer harvest financing or inflation-adjusted prices. Asparagus yields had declined to one-half of their former productivity.

Impact: Rebirth of an Industry. ASAGRO offers short-term farm credits. With its leadership, all processors are now paying more than double the local 1980 price, a price increase 50 percent higher than the background rate of Peruvian inflation. For the first time since 1968, Viru asparagus acreage has not declined, and probably has actually increased.

Impact: Less Dependence, But Also Less TA Than in Santa. ASAGRO's growers in Viru are experienced asparagus producers. The company deals with them following norms already established by processors long operating

in the Valley: little TA, company-operated classification, stricter quality standards, and therefore lower payments to farmers than in Santa, even when prices are nominally the same.

Impact: Greater Grower Satisfaction. Though they receive objectively lesser social and economic benefits, Viru farmers are highly satisfied with ASAGRO, because: (1) they believe they are making a profit; (2) ASAGRO offers higher prices, readily available credit, and greater administrative competence, all compared to other processors; and (3) ASAGRO's recent entry into Viru means that grower relations in the Valley are probably still in the earliest honeymoon phase of the agribusiness normalization process.

Impact: Summary. The lives of Viru growers have been less affected, less completely transformed, than the lives of Santa growers, who owe their very farms to ASAGRO. But the original Santa policies have not proven economically feasible. Though less ambitious in its projected social impact, the Viru model appears to be the more workable agribusiness system.

The Amauta Agricultural Production Cooperative

Background. ASAGRO also has contracts with four collectively farmed land-reform cooperatives, totaling 250 hectares of asparagus. This program, begun in 1979, is similar to the original outgrower plan, offering 100 percent financing and paying biweekly wage-like loans to cooperative

workers. The 25-member Amauta Cooperative, with 137 hectares the largest asparagus producer and the only cooperative in the lower Santa Valley, has planted all of its collectively farmed land in asparagus.

Production Problems. Asparagus production suffers because the cooperative does not supply enough labor per hectare, has lacked effective administration to carry out ASAGRO work plans, suffers from an unusually heavy "mealy bug" infestation, and most important, neglects the collective crop as members concentrate on their private plots.

Impact: Short-Term Survival. ASAGRO labor loans constitute most of the income of Amauta Coop members and workers since 1979. These labor payments, however, have generated a still-rising collective debt of $132,000, approximately the equivalent of 220 person-years of wages at the rate the cooperative presently pays its members. This much debt, on top of another $100,000 already owed the agrarian bank, appears incomprehensibly large to coop members, though it is not out of line with other farmer debts on a per hectare or per person basis.

Outcome: The Coop Asks To Be Dissolved. Convinced that no collective action will ever benefit anyone but its creditors, cooperative members have taken advantage of new laws which permit the division of collective lands. In July, the Amauta Cooperative formally petitioned for permission to divide up the cooperative among its members. The implications of this for the collective debt and the permanently installed collective asparagus

crop are still unknown, but it does appear that the present impact of the asparagus company on Amauta cannot be projected to long endure.

Asparagus Farm Workers

Background. The largest and also the poorest group affected by asparagus production are the 520 farm workers, 355 of them in new positions created by the greater labor intensity of asparagus. As a group, these farm laborers are poorer, less educated, and less assimilated to coastal life than even the poorest of their family farm employers. Migrants from the Sierra, most aspire to permanent residence and permanent farm jobs on the coast. These aspirations are blocked by the temporariness and insecurity of most farm jobs, resulting also in residential impermanence of farm workers who build temporary huts on their employers' farms.

Impact: Tendency Toward Longer Term Employment. Since ASAGRO's recommended system of cultivation involves twice-daily year-round harvests on every farm, the normal practice of periodically dismissing farm workers ceases to be justified by any seasonal adjustments of farm labor requirements. Though periodic replacement of farm labor continues to be financially advantageous to farm employers, who expressed their desire to continue the practice; it has become increasingly difficult and inconvenient.

Impact: Lessened Exploitation. Stabilization of employment, besides bringing the benefit of increased residential stability, also makes it more difficult for employers to continue to deprive workers of the wages

and benefits to which they are legally entitled. At present, this impact is still an incipient tendency, but the direction of the trend is already clear.

Impact: Easier Work. Farmers and workers characterize asparagus work as lighter and easier than more traditional farm tasks. Compared to corn or potatoes, a back-bending weight of product takes hours instead of minutes to harvest.

Impact: Possible Increased Employment of Women as Farm Labor. Because asparagus work requires less strength, and because women are believed to be better at spotting barely-visible asparagus buds, a few asparagus farmers have begun to hire women as farm laborers. Although it is common for women, especially temporary migrants from the Sierra, to work as farm labor during peak harvest seasons, the few women laborers found on asparagus farms were the only year-round female farm laborers known to informants in the area. One employer paid these women slightly less than he would pay men, another did not. The main incentive to employ more women would come not from a (illegal) wage differential, but from the image of women as harder working, more tractable, and more careful at spotting every single asparagus bud.

Social Impact on Asparagus Plant Employees

Background. The town of Santa has mushroomed in the last twenty years from a small agricultural village of fewer than 100 households to a

more urbanized town of approximately 12,000 inhabitants. The new residents are refugees from social upheaval and natural disaster, the breakup of the old estates, a major earthquake, and drought that long beseiged all the agricultural areas to the north. The town never acquired an economic base suitable for its population size, and many residents commute to jobs in the fish canneries of Coishco, the next village to the south, or beyond that to jobs in Chimbote.

Impact: New Jobs. In the first six months of 1981, the plant employed an average of 432 production workers, 90 percent of them women. Eighty percent of these employees are Santa residents, the rest are bussed in from Chimbote. The plant is thus by far the largest employer of Santa residents, giving jobs to five times as many of them as the largest fish canning plant in Coishco, to six times as many as the largest local farm cooperative. In July, it paid production workers a total of $29,680, this in midwinter when production and employment are at their seasonal low.

Three Groups of Women Employees. Women come into the plant from three different work and family backgrounds. (1) Youths have no previous work experience; they continue to live in the households of their parents, or they have migrated to Santa specifically to board with relatives and work in the plant. (2) Experienced factory workers have worked previously in the fish canning plants of Coishco. They come from households that have adjusted themselves to their work roles and grown dependent on their income. This group has been least affected by their new employment in the asparagus plant. (3) First-time factory workers are older wives and

mothers leaving traditional women's work and household roles to enter the asparagus factory. Employment has meant the greatest change for this group and their families, causing the greatest problems but also bringing about the highest levels of expressed satisfaction with their new roles.

Household Impacts: Economic. Due to inflation and a deteriorating economy, it now takes more than two minimum wages to support a Santa household at what the community considers to be a minimal acceptable level of subsistence. Only 44 percent of these employees' households receive that much income; among first-time workers' households, the proportion is even lower, 25 percent. In such economic straits, almost all employees report that they spend their entire wages on the basic human needs of food and clothing.

The principal economic impact, then, is to permit the maintenance of a previous standard of living in the face of 80 percent annual inflation and economic recession. Living at the same economic level as before they worked, especially after a prolonged period of economic improvement and consequently rising expectations, is more likely to engender discontent than high satisfaction. But it probably results in le- discontent than would have resulted had the plant employment not been available and living standards forced into an absolute decline.

Household Impact: Access to Health Care. Permanent employees enjoy fringe benefits that include access to a Chimbote health clinic and sick pay. These benefits are considered very important by the employees who enjoy them because they could not otherwise afford to pay for health care,

and because other local government and Private Voluntary Organization's health care facilities have closed or been cut back.

Household Impact: Housework and Child Care. First-time workers report great difficulties arranging for adequate substitutes to carry out domestic tasks. Forty percent of this group remains solely responsible for such duties, burdened with a full "double shift" of paid and domestic work. Experienced workers, on the other hand, have all found satisfactory arrangements that unload some domestic responsibilities onto other women, primarily young relatives taken into the household for this purpose, but sometimes neighbors become paid domestic help.

These changed family roles are the subject of some domestic strife, among experienced as well as first-time workers. But it is primarily first-time workers who describe their employment as having had a negative impact on their home and especially their children; a few plan to quit work because of these problems.

Personal Impact: New Work Roles. Fifty percent of the first-time workers describe their life as having been improved by the substitution of factory work for their old home, farm, or paid domestic work roles. This response was most frequent among older women and among those with permanent employment status. The new work roles are preferred because they are easier, more defined in terms of task and time, and especially because they are social activities performed in the company of friends rather than in the isolation of farm or household.

Personal Impact: Independence and Self-Esteem. A third of the new workers stated that their employment had improved their lives because it had made them feel psychologically stronger. Youths put the emphasis on the independence and autonomy they achieved by working away from home and by earning their own wages. For older women, the emphasis was on self-esteem, greater feelings of self importance because their work was now more socially useful, and because their status as wage earners made them more domestically important. Whereas men who move from farm to factory sometimes report feelings of lowered self respect and lost independence, new women factory workers report no such feelings; quite the reverse.

Personal Impact: Work Dissatisfaction. Even if half of the first-time workers feel very positive toward their job, an absolute majority of the sample surveyed certainly does not. Moreover, one-fifth of the sample are quite outspokenly dissatisfied. Causes of this dissatisfaction include: pay rates relatively lower than fish plant piece rates; work conditions of peelers who usually develop dermatitis from the asparagus acids; the influence of anti-capitalist political attitudes (which are strong in the area, in the town, and undoubtedly in the work force); the disjuncture between rising economic expectations and static standards of living; and residual anger at the temporary contract system and past managerial actions.

Community Impact: Shift of Employment from Men to Women. Sixty percent of Santa residents who hold full-time employment are now women, a

remarkable shift from the recent past, caused by the opening of the asparagus plant and the shrinking male employment at local farm cooperatives and now-defunct government development and planning agencies. Judging from management's need to import so many women workers from Chimbote, it appears that Santa women are fully employed, while the great majority of the town's men are either unemployed or underemployed.

This issue has high salience for the (male) elected and appointed leadership of the town, who unanimously blame it for an increase in crime, alcoholism, family dissolution, and child neglect. Such views are not corroborated by interviews with women in the town--the employees themselves, church leaders, or the company social worker--all of whom take the view that these social problems are no more prevalent in households of women workers than they are in households whose women stay at home.

Community Impact: Shift from Public to Private Employment. The asparagus plant, the principal new source of employment in Santa, is a private enterprise; on the other hand, farm cooperatives and government agencies, formerly important employers, were noncapitalist enterprises. Employment has therefore shifted not only from men to women, but from nonprofit to profit-making enterprises. This is a politically controversial issue in the town, applauded by some and deplored by others. The issue was raised by some town officials allied with Peru's new government, as a positive factor; other elected officials, while not condemning the plant, attempted in the interviews to put distance between themselves and it, stating that they knew nothing about it. The issue was also important to youthful leftists in the town, judging from the slogans on walls, and was

raised more than once by plant employees, all from among the experienced worker group.

Community Impact: Local Patron of Community Events. The company plays the local role of sponsor of school pageants, patriotic parades, community improvement projects, and the like. Between the time the haciendas were nationalized and the asparagus plant opened up, the town had no local patrons willing to play such a role. Not only by its donations, but by the attendance of its managers, the company lends support to community functions; this was considered important by various community leaders who tend to be the organizers of such events.

Community Impact: Commerce. The only visible local "multiplier effect" of the plant and its wages is an increase in street vendors, especially along the street in front of the plant, where they sell snacks and prepared foods to plant employees, most of whom miss their main meal of the day at home because of the plant's short lunch break. Similarly, neighborhood stores have become more important, because they offer greater convenience and credit to plant employees. More food shopping is now done in these stores instead of the Chimbote market. Since the plant began operations, at least one local store in every poor neighborhood has expanded from a marginal part-time activity into a thriving business.

CHAPTER III

BACKGROUND DESCRIPTION: THE AGRIBUSINESS DEVELOPMENT FUND AND THE AGROINDUSTRIAS DEL SANTA ASPARAGUS PROJECT

Funded with a $15 million loan in FY 1977, AID's Peru Rural Development Agribusiness Fund was created to "increase food production, employment and incomes of the rural poor, and improve nutrition." More specifically, the project was intended:

1. To establish in the Central Bank a facility for rediscounting loans made by financial institutions to sub-borrowers which process or market agricultural products or provide complimentary goods and services to the agricultural sector;
2. To establish a program of promotion and development of such agribusiness, including appropriate technical assistance, which will maximize benefits to small farmers and the rural poor.

By thus developing the agribusiness sector in Peru, AID and the Central Bank intended to alleviate four basic constraints which had been identified as obstacles to increased agricultural employment and income:

1. Inadequate marketing facilities;
2. Inadequate processing facilities;
3. Inadequate goods and services input industries, and
4. Incomplete agribusiness system linkages.

(This and previous quotations are taken from the Project Paper, Section I.3 "Goals and Purposes of the Project," page i.)

The Agribusiness Development Fund, known in Peru as FRAI (Fondo de Reserva de Agro-Industria), has a total loan capacity of $19.6 million, including

both AID's $15 million and the Central Bank's $4.6 million contribution. The fund is administered by a special unit of the Central Bank, headed by Dr. Carlos Klinge, with headquarters in the central headquarters of COFIDE, the government's development corporation. An interim outside evaluation commissioned by USAID/Peru in June 1980 (Lucio G. Reca, "An Evaluation of Agrobusiness Rediscount Fund") found that FRAI was being administered in a "competent and professional way." (Page 5.) At the time of this evaluation, the funds had been largely disbursed through twenty Intermediate Credit Institutions to 103 agribusiness projects. The Central Bank has thus been able to disburse its funds by the projected target date, even though the initial start-up was somewhat later than anticipated, with the initial loans being approved in December of 1978. Among the earliest of the loans to be approved was a maximum-size loan ($750,000) made on January 4th, 1979 to Agroindustrias del Santa (AGSA).

This company is a new subsidiary of the Bertelo Group of companies, based in Lima. It was formed to process and export canned white asparagus. The FRAI loan was granted to help finance construction of a new canning plant in the town of Santa, on the north coast of Peru near Chimbote, and also to supply working capital to lend to small growers. Such credit is necessary to start asparagus cultivation since the crop is a permanent (10-years, in Peru) installation which does not earn income until the second year, or pay back its start-up costs until a third year.

The Asparagus Canning Plant

The new plant began operation in November, 1979. From the first days of operation it employed 120 people, and that number expanded steadily

steadily to a peak of almost 500 workers in January, 1981. From that summer harvest peak, employment slowly contracted to July's midwinter low of 350 employees. By local standards, this is a big enterprise. Summer and winter, the asparagus plant employs more people than any other nonfarm enterprise in the 150-mile stretch of coast between the cities of Chimbote and Trujillo.

Physically, the plant is a very large new building of cement and corrugated steel, located near the center of Santa's urban zone, adjacent to the new town of Javier Heraud. Built very large to accommodate an expected doubling of capacity, the plant inside is a cavernous space only partially occupied by the present single assembly line and its associated work force.

Almost fifty people find work in peripheral areas of plant activity, maintenance, machinery, the office, the laboratory, the warehouse, shipping and receiving, but most of the employees are directly involved in production. Since the production line involves some steps that require very little labor, like washing or blanching, most people work in the three labor intensive steps of the asparagus canning process: peeling, selecting, and packing. Because the company processes only fancy white peeled asparagus, almost half of the production workers use simple paring knives to pare the tougher outer layer from each asparagus shoot. After a short time at this task, the peeler is coated to her elbows with the caustic raw asparagus juice that causes most people to break out in a tenacious kind of contact dermatitis. Most people view this job, therefore, as the worst in the plant, even though it is the most common. Once peeled, the asparagus

is sorted into fourteen different quality categories, another labor intensive job requiring large numbers of workers. The third large group of workers packs the right amount of similar quality asparagus into each can.

The work benches of all three categories of workers--peelers, selectors, and packers--are served by moving belts that bring the raw materials to them and take away their finished products. But this is not "assembly line" work in the normal sense of the word, since workers are free to choose how much to pull off of the belt on the line. Production quantity is determined not by the speed of the belt, but by a separate control system involving cards that each worker wears on her shoulder, to be filled in by her supervisor who counts each production unit. This quantity control system is unlike the one familiar to workers from the fish canning plants in Coishco, which all use a piece rate pay incentive system that normally allows the hardest working employees to earn up to double the legal minimum wage.

The asparagus plant, on the other hand, pays the minimum wage only. This arrangement is the most common cause of complaints in the plant employees surveyed. Even though most of those who had worked before in other plants described work in the asparagus plant as cleaner, easier and (of course) nearer to their homes, their preference was nevertheless for the intensified work and higher earning potential of the fish packers' piece rate pay system.

Most of the women at the asparagus plant are temporary employees working on short-term contracts. Some of the original production workers were hired on a permanent basis, but after a few months of operation the company began to hire people only on temporary contracts. The contract

system is much more economical for the company, since such temporary employees have fewer rights and are legally entitled to fewer fringe benefits than their permanently employed colleagues. The contract system came into widespread use among private employers in Peru after the government modified its labor protection statutes to exempt workers with less than three years (instead of the old laws' three months) employment. Except for the government and its associated enterprises such as the Siderperu steel mill, all large private employers in the area around Chimbote now hire their labor on temporary contracts. The present policy at the asparagus plant is to renew these these contracts up to a total of nine months, after which a layoff, or as the management calls it a "vacation," of no less than one month is required. Unless renewed, each contract is normally of two to four months duration. By renewing these contracts or not, and by occasionally hiring some of those who regularly apply for work, management makes weekly adjustments in the size of the work force, according to ASAGRO agronomists' predictions of upcoming harvest quantities. The contract system also makes it easier for management to weed out less productive workers, as well as "troublemakers" such as some involved in a sitdown strike last December. It is much easier not to renew a temporary employee's contract than it is to fire a "permanent" employee.

The plant operates six days a week, with the Sunday harvest held in cold storage until Monday. Peelers start work at 7 in the morning, followed an hour later by the selecting crew, and finally at 9 by the packers. Similarly, at the end of the day workers are dismissed serially as the last of the asparagus passes through their area. The normative work

day is eight hours, but a slight amount of daily overtime is common. Although management tries to make weekly adjustments in employment to reflect fluctuations in the size of the daily harvest, the length of the work day is ultimately determined by the amount of asparagus available. For several months of peak production last summer, this led to work days of fifteen or sixteen hours, beginning early in the morning and continuing past midnight. Eventually, the company went to a two-shift operation to cope with this amount of product, but that was intended as a temporary expedient. As production tapered off, the second shift was discontinued. At the time of this research, work was under way on the construction of a second assembly line to avoid such problems next summer.

The Asparagus Outgrower Program

Even before the plant construction was begun, a separate subsidiary was set up, Asesoramientos Agroindustriales (ASAGRO), to enroll growers and promote the planting of asparagus in the Santa Valley, where the crop was previously almost unknown. From the beginning, despite agronomic feasibility studies that have repeatedly over the last twenty years pointed to the Santa Valley as ideal for asparagus, ASAGRO has had difficulty in getting farmers to agree to grow the crop. The farmers's reluctance is understandable: the crop is unfamiliar, and the plant's characteristics (10-year life cycle, 3-year payback period) make it riskier than the more familiar crops. As a result, even the company's very favorable promotional offerings of 100% financing induced only a scattering of farmers to sign contracts. Since 1978, the company has been able to sign contracts in the valley with a total of 106 individual farmers and one production co-operative, for a total of about 500 hectares of presently producing asparagus. These

producers are thinly scattered in the more recently developed zones of a valley that contains thousands of farmers and tens of thousands of irrigated hectares.

Many of the asparagus farmers joined the program as much out of desperation and lack of alternatives as out of belief in the possibilities of asparagus. The smallest farmers, in particular, were in an especially desperate situation until ASAGRO came along. Unable to afford to hire the heavy equipment necessary, they had been able to level and therefore irrigate only tiny parcels of the land they farmed. Unable to farm the land they had obtained, they were forced to seek income in off-farm employment. Many of them were farmers more in aspiration than in actuality. ASAGRO's original contract terms were seen as a godsend by the poorest and most desperate farmers. Not only would the company provide all the capital necessary to establish the crop, it would also in many cases arrange and pay for the basic costs of "making the farm," that is, grading the sand lots to make them irrigable and then trucking in tons of organic materials to make them arable. On top of all these benefits, which would not have to be repaid until the asparagus crops started to earn money two or more years into the future, the company would lend the farmer a bi-weekly payment for family labor until the harvests became profitable. For most of the small asparagus growers, these wage-like loans became their only regular source of income and the principal sustainer of the family over the years since the 1978 plantings.

The economic importance of these credits to the smallest family farmers' operations is indicated by the circumstance that most of them have no "made" land available and plant no other crops besides the asparagus

(see Tables 9). The farm entrepreneurs who were attracted to the program also made available only their poorest, least established pieces of land. So they also, presumably, were influenced by their inability to establish other crops, due to the lack of credit alternatives comparable to the terms and facilities that ASAGRO was making available.

The company's main attraction for farmers was thus its credit program and its willingness to work with unformed land, two policies that must be chalked up as promotional expenses, since their costs have proven uneconomically high for the levels of asparagus productivity so far obtained. Both policies have been abandoned by the company, which is no longer recruiting farmers in the Santa Valley. According to interviews with the farmers, another attraction was the salesmanship of the original agronomist and project promoter, a man who sold the asparagus idea to farmers just as intensely and convincingly as he had earlier sold it to the Bertelo Group's management. He eventually was found as wanting as the promotional policies he administered, and has since separated from the company amid accusations of maladministration, fraud, and embezzlement. But the legacy of his overenthusiastic promotional efforts continues to cause problems in farmer-company relations, as farmers evaluate their actually achieved levels of profit and productivity against the unrealistic projections that he set down in their original contracts.

Despite the very favorable credit package and the aggressive salesmanship, ASAGRO was not in the end able to convince significant concentrations of either family farmers or farm entrepreneurs in the Santa area to plant asparagus. There exists one possible exception to this generalization, a fairly concentrated area of asparagus plantings that includes the

137 hectares on the Amauta Co-operative and a total of approximately 50 hectares on nearby parcels of land owned by several brothers, members of a relatively prosperous family with residences in Chimbote. Throughout the rest of the valley, asparagus farms are small and thinly dispersed, adding greatly to transport costs and requiring an inordinately large staff of agronomists to cover such a small but widely dispersed number of growers. To cope with these problems, the ASAGRO management expects to phase out many of its present growers, especially the smallest farmers most distantly dispersed on the poorest soils of the most recently colonized irrigation districts. As present contracts expire, plantings will not be renewed except in areas of high farmer interest and potentially greater farm concentrations. Another new policy, adopted partly to cope with the over-dispersion problem and partly for other reasons, will restrict future plantings to farmers large enough to plant at least 10 hectares of asparagus. This policy eliminates most of the poorest farmers in the area from potential participation in the program. Although most of their farms are potentially large enough to meet this requirement, their plots of actually levelled and farmable fields are too small, and the company will no longer offer credit for basic "farm-making" work.

The social impact on Santa Valley farmers, described in Chapter IV, therefore, must be understood as a temporary and possibly transitory impact, the effects of ASAGRO policies that have already been rescinded, among a population of farmers whose continuation as asparagus growers is at least in doubt. Even if the company does succeed in overcoming its present sales and profit problems to pursue its expansion plans, its effect on any

future asparagus growers cannot be projected from the experiences of the original Santa Valley farming group.

In its continuing attempts to solve its supply problems, ASAGRO has changed direction to target a new group of potential producers. The previous management inaugurated a program of relatively large-scale contracts with collectively-farmed cooperatives in the Santa and Casma Valleys, a not very successful program whose operations and social impact are examined later in the chapter on the Amauta Cooperative. The present management has turned to more experienced asparagus producers in the Viru Valley to the north. This so-far successful program has experienced little difficulty in attracting growers away from competing asparagus canners already established in that area. The social impact of ASAGRO's Viru operations, described in Chapter V, appears therefore to be a better base for projecting any future social impact of the company as it expands and affects new groups of farmers.

CHAPTER IV

SOCIAL IMPACT: THE ASPARAGUS GROWERS OF SANTA

Background

Historically and ecologically, the Santa Valley is among the most important of Peru's coastal farming valleys. The Rio Santa drains a large proportion of Peru's highland intermountain plateau. It is therefore the coastal river with the largest volume of water, making this valley unique among the northern coastal valleys for its year-round irrigation source.

The valley's broad coastal plain is divided into two distinct types of farming areas: zones alongside the river with silt deposits, well-formed soils, and a history of irrigated cultivation that stretches back into the pre-Hispanic era; and a series of newer farming zones carved out of former desert by a succession of irrigation expansion projects. The first of these was finished in the late 1950s and the most recent in the mid-1970s. Soils in these latter areas are only now in the process of formation, as farm cultivation slowly adds organic materials to form a fragile arable cap over the original "dead sands."

All of ASAGRO's individual contracted farmers are located in these newer farm areas, as is the cooperative Amauta, one of the four agrarian reform collectives that grows asparagus for the company. Farmers with better soils in the more established areas could obtain much higher yields of good asparagus, according to company agronomists; but so far the company

has only been able to sign up farmers in the more recently colonized zones, whose poorer quality soils do not permit them to grow more profitable crops.

Family Farmers and Farm Entrepreneurs

Asparagus farmers in the Santa Valley are made up of two distinct types of farming operations (see Table 15). Little less than half of them are true family farmers; that is, they utilize family labor whenever possible, hiring outside only when family members are insufficient. Since asparagus is such a labor-intensive crop, two-thirds of these family farmers do hire outside labor on a regular basis. The other farmers will be referred to in this report as farm entrepreneurs, people who treat their farms like businesses, operating them on the basis of exclusively hired labor. This group, a slight majority of the asparagus contractors in the Santa Valley, is often referred to in the development literature as "medium-sized farmers." In this case, however, the size of the farms involved are in the same general range as the family farmers, and it is misleading to think of these farm entrepreneurs as larger than the family farmers. The key difference between these two groups is not the size of their farm operations, but the socioeconomic and educational levels of their family backgrounds. Family farmers have lower levels of education, are likely to have spent less time working in non-farm occupations, and aspire to provide a prosperous farm as a principal legacy for their children. Farm entrepreneurs include those in the group with more than a primary education (although a majority of farm entrepreneurs have only a primary level education); they have spent more time in non-farm jobs (although most were originally raised in farming families); they are more

likely to have been born on the coast rather than in the Sierra; and they aspire to provide their children with technical or university educations to provide them with an occupational status higher than their own. Because of their backgrounds in coastal rather than Sierra agriculture, because of their more urbanized life styles, and because their children are usually expected to continue trying to further their education well into adulthood--for all these reasons, farm entrepreneurs view their farming role as that of a manager or overseer rather than as a worker. Most of this group maintain residences in Chimbote. In two cases, daily farm operations are left in the hands of a family of farm employees who lives on the farm site, but in most cases the farm entrepreneur himself spends his days on the farm, rejoining his family in their urban residence either nightly or weekends. A majority of the farm entrepreneurs divide their farm from their residence in this way, but about one-third of this group maintains its principal residence on the farm, renting rooms in urban zones for children pursuing education beyond the levels available locally. All of the family farmers, on the other hand, live and work at their farm sites; their children are provided with whatever primary education is locally available, but are expected to devote their principal energies to work on the farm.

The two types of farmers, though they differ in many ways, tend to have certain personal characteristics in common: aggressiveness, tenacity, determination. The Santa Valley asparagus growers are uniformly people who have endured ten or fifteen years of hardship and deprivation in order to obtain their desert farm sites. In the process, they have had to battle government bureaucracies to regularize their farm titles and to get and

keep their all-important water rights. At the same time they have struggled, with no capital of their own and without the agrarian reform agency's expected assistance, to "make their farms," to turn alkaline sandhills into graded, irrigable, arable soil. The original settlers in these colonization districts had to arrive well in advance of the water, defend their claims against later arrivals while at the same time trying to legitimize them in the eyes of the agrarian reform agency, hang on through years of project delays until the water arrived, survive the sudden shifts of government policy that revoked the anticipated technical and financial assistance, and endure the earthquake that destroyed the irrigation system and killed off all their crops and livestock from the ensuing lack of water. Most of the original settlers did not survive these tests, abandoning their properties in despair. Their places were taken by later waves of hopeful migrants, people whose character was likewise put through the same kind of testing. Those who never acquired the capital base to "make their farms" quickly but who nevertheless made it through these hardships are a tough bunch of proven survivors. Most began life as laborers on the old haciendas, many had to seek off-farm jobs as vendors or laborers in order to survive this prolonged period of hardship. Their skills as independent farmers have not been finely honed, but on the other hand their years of struggle with the bureaucracies have given them an organizational and political sophistication that more traditional independent farmers seldom acquire.

ASAGRO's Operating Procedures

The Original Program. From its first operations in the valley in late 1977 until its management change in March 1980, ASAGRO pursued a unique outgrower policy. To promote the planting of asparagus, the company undertook to finance 100 percent of the costs of agricultural production. The company accordingly financed all inputs, equipment rental, and labor costs to prepare the land, plant the asparagus and tend the fields. Even imputed family or cooperative member's labor was paid at the same rate as hired labor with company advances against anticipated production. All of this credit was medium-term, since asparagus does not become a paying crop, even under this area's highly favorable climate conditions, until the third harvest, 30-36 months after transplanting. The interest rate that ASAGRO charges for these credits has varied over time, as the company followed the rates set by the government bank regulatory agency for loans made by the government's own development agencies. The company is not legally required to follow these rates, but finds it convenient to do so, since there would be negative public relations consequences of charging more that tend to counteract negative financial consequences of charging less. At the time the project began the interest rates were in the 20-25 percent range; by 1981 the rate had climbed to 49.5 percent, dropping to 47.5 percent in June of the same year. This doubling of the interest rate has greatly affected the nominal size of farmers' loans, which has had a negative psychological impact on the growers. The actual economic impact is not negative, however, since these interest rates are much lower, as a matter of government policy, than the rate of Peruvian inflation. When the new interest

rate of 47.5 percent was announced in June 1981, for example, the overall inflation rate was running at about 80 percent a year, and ASAGRO's asparagus price had risen 72 percent over the previous 12 month period.

When it first began operations, and still today in one limited section, ASAGRO not only provided the financing but also the actual work crews. Under the direction of its own manager-agronomists, these crews prepared the land and transplanted asparagus from the company's seed beds. In many cases, the farmers' only initial involvement was to provide the land and agree to pay back the costs plus interest once the asparagus was in production. Once planted, the farmer did become responsible for the care and cultivation of the fields, still under the direction of company agronomists, but he was "paid" for this work (actually, the payments were loans) every two weeks according to the labor expended.

The financial record keeping during this early start-up phase was too loose, with a central office in Lima charged with the task of posting growers' accounts based on the often ambiguous and fragmentary documentation of ASAGRO's expenditures and work crew labor provided by the local management in Chimbote. Since these accounts often ran behind, and the records were in any case far removed from the farmers, a grower could find out the status of his debt only by applying for an accounting and waiting to receive a response. Farmers consequently had little idea of the extent of their indebtedness; the bi-weekly labor checks had the appearance of an earned wage rather than the interest-bearing loans that they actually were.

Farmers recall this earlier period as a time when the company was friendly, generous, open-handed and eager to help. Cost-cutting economic

concerns were not a high priority for either the company agronomists or the farmers because their asparagus farms were going to be such a high-yield, high-profit business that their mounting debts would quickly melt away.

The company's processing plant in Santa opened its doors in November 1979 and the daily purchases of asparagus began. In this new phase of its operations, the company needed a dependable, efficient, day-to-day administration, which it was soon apparent that it did not have. Daily raw material deliveries were undependable, and farm production was consistently far below agronomists' estimates.

After a few months with little headway at overcoming the initial administrative difficulties, top management in Lima brought in an outside consultant to make an independent evaluation. The consultant hired was the agronomist Juan Conroy, formerly chief agronomist for the pre-reform Hacienda Casa Grande, the largest in Peru. The report criticized agronomic practices, accounting and administrative deficiencies, and gaps between claimed and truly achieved agricultural investments. Thus, the report found that some of the claimed hectares were not actually planted, that planted fields contained lesser numbers of plants (too few to be economically viable in some cases), and that costs of extensive grading and land preparation were too high to be repaid by the low yields obtainable on such poor soils. But the emphasis of the report was on the total lack of any budget or cost monitoring procedures. With such generous loans and rising interest rates, farmers' debts could well become permanent obligations, putting the company in legal violation of provisions of Peru's land reform statutes that prohibit debt peonage.

Subsequent investigation by the company revealed that approximately 20 percent of the claimed acreage was never planted, that loans were made to associates and farm entities that neither signed asparagus contracts nor possessed suitable lands. In addition to these cases of apparent embezzlement, many of the actual contracted outgrowers were found to have fewer plants on lesser acreage than company records indicated. These discrepancies are common in the area of the Santa Valley known as Tangay, the most recent irrigation and colonization project area where the poorest and least educated family farmers are concentrated. It is highly probable that farmers whose lands were found to have phantom asparagus plantings are paying interest on credit accounts inflated by the phantom expenses supposedly incurred by the company providing and planting the non-existent asparagus.

During the course of the company's internal investigations of these matters, the administrator and original promoter of the asparagus project left to take a job elsewhere. The company turned to its consulting agronomist, Mr. Conroy, and asked him to take over ASAGRO's operations. He agreed to do so, and since his arrival in March 1980, the company's outgrower program has been so transformed as to constitute an entirely different mode of operation, with a correspondingly different impact on the farmers involved.

The Present Program. By the time this research was conducted from May through July 1981, ASAGRO had become a tightly administered staff conducting their business in an efficient and highly bureaucratized fashion. Multiple records are kept of each and every transaction, a

system of checks and balances guarantees the demonstrable probity of every employee, all fields are checked by an agronomist at least weekly, and the processing plant is provided with precisely accurate predictions of the quantities of daily harvests.

To carry out this work, ASAGRO employs a staff of twenty employees. The agricultural field staff is headed by an agronomist, Jaime Fairlie Cannon, and includes four other professional agronomists and nine assistants, most of whom are formally trained farm technicians (Técnicos Agropecuarios). Technical responsibilities are divided among the agronomists according to functional areas: one taking charge of R&D; one in charge of diagnosing and prescribing treatment for diseased or blighted fields; one in charge of harvest organization; and one in charge of the separate Viru operation. Engineer Fairlie's primary responsibilities are administrative; in addition to directing the field staff, he keeps charts on every field of every farmer. These are used to verify and approve any expenditure which a grower has included on his bi-weekly loan request, and also to prepare long, medium, and short term predictions of daily asparagus harvest levels.

In addition to the agricultural field staff, ASAGRO employs an office staff of bookkeepers and secretaries headed by Dr. Emilio Castro, the firm's lawyer/administrator. They are primarily responsible for budget and contractual arrangements, with suppliers of agricultural inputs and services, as well as with the growers. Files are updated and accounts posted daily, half of the farmers receive their bi-weekly loan checks every Friday, and every month reports are prepared for the central office in Lima, financial statements are made available to growers, and employee

wages are paid. The office staff works five days per week, the field staff five and one-half. A skeleton crew rotates the necessary Sunday work duty, since asparagus fields do not stop producing new shoots on weekends.

This is a very large staff to administer so few hectares (approximately 700) and such a small number of farm units (110).* According to Mr. Conroy, such a large staff is necessary due to unusual characteristics of the program: (1) farm units are so small and widely dispersed that technicians' travel time is greatly increased; (2) the company's policy of quality maximization requires a complicated collection and transportation system of thrice daily pick-ups at every farm; (3) none of the farmers are experienced asparagus growers, and many are novices also as independent farmers in the coastal desert environment; and (4) the project is both agriculturally and organizationally a pioneer.

In the field, the daily work schedule is dominated by the necessity of keeping up with the harvest. Asparagus shoots are the tips of new plants sent up by root crowns buried a foot or so underground. Every four months, when the existing asparagus plants have fruited and begun to die, the brush is cut back and the roots buried under a new layer of soil. In an effort to reestablish itself, the plant sends up new shoots, the tips of which form the edible asparagus. The white asparagus favored by the European market differs from the green asparagus more familiar in the United States only in the time of harvest. White asparagus, the kind that ASAGRO produces, must be harvested the instant the tip emerges from the soil. If

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* The figures exclude farmers and acreages in Viru, whose production is neither contracted nor controlled by the company, but merely bought, harvest by harvest.

left exposed to the sun for as little as three hours, the tip of the asparagus opens up, the shoot turns green, and the product deteriorates rapidly from first quality (white and unopened) to third quality (green with opened tips).

ASAGRO therefore advises its growers to harvest twice a day. This practice, which is followed by most of the growers in the Santa Valley but none of those in the Viru Valley where one harvest a day is the established custom, maximizes product quality. It also increases grower income, since there is a sharp price differential between the three quality levels: first quality @ S/165 (39¢)*/Kg; second quality, S/125 (29¢)/Kg; third quality, S/90 (21¢)/Kg. To harvest the asparagus, harvesters walk up and down the apparently empty furrows, backs bent and heads bowed, searching out the small white tips. When they spot one, they insert an asparagus knife, a piece of metal sharpened on the end like a long, thin chisel, and cut the tip 8 or 9 inches below the surface. (The company will only buy the last 20 cm.) At the side of the field, another worker classifies the asparagus into the three different quality categories, primarily according to maturity, but there are also minimum and maximum diameters permissible in the first quality category.

Once harvested, the asparagus begins at once to dehydrate, making it tougher and more fibrous. At the same time, natural sugar is turned to starch and the asparagus flavor deteriorates. To keep up both the weight

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* Because of Peru's inflation rate, the exchange rate between Peruvian soles and American dollars changes daily. Accordingly, the rate was S/395 = $1.00 at the start of this research and S/448 = $1.00 at the end. The exchange rate used in this report is consistently S/425 = $1.00, a somewhat arbitrary mid-point.

and the quality, therefore, ASAGRO has devised a transportation system that involves small pick-up trucks passing by each harvesting field three times a day. These trucks, owned and operated by independent sub-contractors (including two who are also among the farm entrepreneur group of asparagus growers), receive the harvest from the farmers and transport it to the company's collection point in the village of Cambio Puente. A small cross-road town of about 50 families, Cambio Puente is the place where the various small farm roads to the outlying asparagus-growing areas join a major dirt road from the city of Chimbote and another smaller road that passes through other villages before ending up in the town of Santa, the site of the processing plant.

The pick-up truck drivers carry portable scales to weigh the product at the farm site and to issue the delivery receipts to farmers. Before weighing the product, the drivers are also responsible for a quality control check to ensure that the farmers are following the company's classification standards. From farm to plant, the asparagus is transported in specially-designed, company-owned plastic crates. Careful inventory of these is maintained at all times; both the farmers and the truckers must sign receipts noting each empty crate they receive and full crate they deliver.

At the collection center, home base for the agronomist in charge of harvesting as well as for two or three farm technicians, the asparagus is transferred from the pick-ups to the large truck that makes twice daily deliveries from the collection center to the plant. Farm technicians verify the weight and classification of each crate as it comes off the pick-up truck. If any discrepancies or problems arise, or if a route driver

reports that a farmer has something he wants to discuss, either the agronomist or a farm technician can set out for the farm at once. (Agronomists are equipped with small pick-ups; farm technicians share motorcycles.)

When not specifically overseeing the day's harvest, one agronomist and some farm technicians are normally busy visiting the fields of farmers who are not then harvesting. Farm visits are made to check on the progress of the crops (to verify and if necessary adjust the expected dates and quantities of the field's harvest, part of the constant updating of overall production forecasts); to evaluate and diagnose any problems resulting from poor cultivation practices or pest infestations; to verify that the necessary farm work has been done, or that projected tasks for which the farmer has requested a bi-weekly loan are both necessary and timely; or to lend technical assistance to the grower. Only the last type of farm visit requires an actual meeting of field staff and farmer. This is the rarest kind of farm visit; therefore, most of the field staff's work overseeing the farmers' production is not visible to the growers, who do not understand the extent or importance of the field staff's administrative duties.

At the same time, other agronomists and farm technicians are involved in experimental work. The company has for some time been involved in a major research effort with industrial tomatoes to check the feasibility of the processing plant's planned expansion into that line. The mealy bug infestation, discussed elsewhere, has also required a large scale crash research program. In addition, the company carries on continual asparagus research, principally directed toward lowering the costs of recommended inputs and improving the company's nursery stock. Other farm technicians are assigned permanently as resource persons to the various collectives.

Finally, there remains one field employee who works as a straw boss, directly managing the employed labor force on several contiguous farms owned by a family of farm entrepreneurs that have been unable or unwilling to take care of their contracted asparagus acreage without direct company involvement.

Passing their days like this, the field staff puts in long and hard hours, and feels overworked, despite such incredibly low ratios of 17 farms per agronomist (7 per field employee) and 194 hectares per agronomist (46 per field employee). All of ASAGRO's field employees work longer and harder for less pay than their equivalently qualified counterparts in the public sector. Yet the necessity for such a large staff, constantly called into question by the farmers in their arguments for higher prices, remains open to doubt. Although stretched thin under present circumstances, some of these circumstances are the result of managerial decisions which could in the future be modified. To summarize, the field staff is as large as it is because of: the widely dispersed farm units; the unfamiliarity of all Santa farmers with the new crop; the large proportion of troubled asparagus fields due to cultivation errors or unformed sand soils; the very labor intensiveness of the crop; the company's total emphasis on high quality based on its overall pricing and marketing strategies; and the elaborate and costly control systems introduced by the new management as a reaction to the fraud and waste that resulted from the previous lack of accountability.

Impact on Santa Valley Farmers

Making Farms and Making Farmers. The basic impact of ASAGRO on its contracted farmers has been to perpetuate and consolidate their position as independent farmers. Both the farm entrepreneurs and the family farmers are people who were born and raised on farms, who worked many years as urban laborers (most of the farm entrepreneurs) or farm workers (most of the family farmers), and who have dedicated the last 10 or 15 years of their lives to the single-minded realization of one life goal: to become independent farmers on their own piece of land. Towards that end, they have migrated from other parts of Peru to the Santa Valley, occupied their parcels of sand, and fought with a succession of government agencies pursuing widely varied land and agricultural policies to aquire the land titles and rights to cheap water necessary to turn their lots of sand into private farms.

Nevertheless, when ASAGRO began its asparagus operations, many entrepreneurs and almost all of the family farmers were still, despite years of effort, in a most precarious position. Despite their land ownership and access to irrigation, they lacked the capital or credit necessary to actually begin farming. As desert colonizers, they could work their farms only after they had graded the terrain sufficiently to tie their own lands into the gravity-fed irrigation system, and after they had added enough organic material to the sands for the tentative formation of the fragile cap of arable soil structure.

Possessing the land but unable to either make it produce or earn a living from it, the would-be farmers were forced to spend their energies

trying to maintain an off-farm income. Families of the poorer farmers survived from the occasional daily wages earned by males in the family on other farms, by occasional excursions as artisanal fishermen in rented boats, and by eating or selling the meager produce of whatever small patches of their farm could be irrigated without significant grading. Farm entrepreneurs fortunate enough to own an ancient vehicle or market post earned an income by operating such an off-farm business.

Over the years, all of the beneficiaries of the Santa Valley irrigation projects have been stuck in this situation at one time or another. Many eventually abandoned their hopes and their lands, retreating to the shanty towns and the urban job markets which they had once sought to escape. Many more had little by little become successfully established farmers, who after twenty years now cultivate well-established crops that produce reasonably well in the gradually established soils of their gradually expanded plots. Even before ASAGRO arrived, these small land holders, including the poorest of the family farmers among them, enjoyed a standard of living and a set of life chances incomparably better than many of the desperately poor Peruvians around them, the unemployed, the migrants from the Sierra, and the landless farm laborers.

For the 106 farmers desperate or adventurous enough to take a risk within an unknown new crop and an unknown new company, ASAGRO accomplished in a year what other farmers needed a generation to achieve: the transformation of sand lots into farms. Providing the credit, the know-how, and even organizing the work itself, ASAGRO brought in the tractors (and even the heavy construction equipment, if necessary) to grade the fields, bought and spread tons of manure, and transplanted the asparagus crowns. Over-

night, land that did not and could not grow anything became a cash crop farm. And from that point on, since the farm entrepreneurs could not pay their laborers nor the family farmers give up their outside jobs, ASAGRO made bi-weekly payments so that those who cultivated the crop could survive over the three years until asparagus would become a paying proposition. Of course, all these payments and expenses were not gifts or promotional expenses, but loans to be repaid at the prevailing rate of interest. Thus the farmers willingly shared the company's risk as together they tried to produce asparagus with the inexperienced hands of these farmers and their unused land.

An Unsuccessful New Form of Farm Credit. ASAGRO was therefore introducing not only a new crop to the Santa Valley, but also a new system of agricultural credit and farm loans. In a sense, the company was taking the pattern of agricultural credit previously used by Peruvian governmental agencies to finance production on the land-reformed collectively-farmed cooperatives and applying it to individual farmers in the private sector. In this agrarian credit system, farmers are paid as they work, as if they were wage earners instead of self-employed independents. In this system, farmers receive and spend money which they believe they have earned by their labor. But the already-spent money is merely a loan not a payment; it won't actually be earned until the crop has been successfully harvested. Should any unforeseen problem arise, such as the mealy bug infestation currently attacking the asparagus, then the farmer-borrower finds himself confronted with an impossible debt which he has only half-consciously assumed, and the lender finds itself in turn confronted with a massive bad

debt and a class of angry clients. This type of farm credit system has not worked in Peru's collective farming sector; most cooperatives are buried in debt and demoralized by the apparent impossibility of ever getting free. Likewise in the private sector, this credit system has not worked out well. The company has terminated the experiment, continuing with its present contractees but refusing to extend this kind of credit to any new growers. Like the members of the bankrupt cooperatives, the company's farmers are daunted, alternately angered and demoralized, by their increasing indebtedness. Privately, ASAGRO Administrator Mr. Conroy predicts that 50 percent of the original group of farmers will prove ultimately unable to repay their debts. Eventually, he says, the company will have to write off these debts as the price it must pay to learn the lessons of its earlier mistakes. The subject of this indebtedness, its causes and its consequences, must be a major part of the analysis of the social impact of ASAGRO in the Santa Valley. The issue is addressed again in later sections of the chapter.

A New Colonizing Crop. Asparagus is not only a new crop in the Santa Valley, but a new colonizing crop appropriate for new land. This has potential importance, because there are only two other practical colonizing crops in the Valley, alfalfa and peanuts. Neither of these are considered "worthy" by any existing financial institutions, a fact which increased the importance of the initial impact of ASAGRO. Although as yet unrealized by any of the ASAGRO plantings, asparagus's potential as a colonizing plant may be its most important value to the agriculture of the area. This is the opinion of Alberto Quevedo, the administrative agronomist of the Santa

Elena cooperative in Viru and the agronomist most experienced with asparagus cultivation in Peru. In his opinion, other crops such as potatoes will always be more profitable on already formed soils. The greatest advantage of asparagus is as a colonizer, since it will survive if not thrive on pure sand, and its plant cycle allows twice-yearly applications of organic material to fertilize the soil and gradually build up its structure.

This is how he uses the crop at Santa Elena, before the Agrarian Reform one of the original estates to introduce asparagus to Peru and still a substantial producer of the product, with asparagus planted on almost 100 of the collective's more than 2,000 hectares. This use of asparagus as a colonizer, however, is only feasible if the grower has his own source of organic material, such as Santa Elena's livestock stations. The new ASAGRO management has determined that outside purchases of manure is uneconomic, even if yields were to increase substantially beyond present levels, and has therefore discontinued the former practice of financing such purchases, to the dissatisfaction of many growers. Although technology exists which could permit small farmers to generate their own organic fertilizers, for example by composting or by grinding the asparagus bushes, company agronomists have not assigned a high priority to experimentation or dissemination of these techniques, partly because other yield-depressing problems are more severe and promise more immediate results if solved, and partly because they don't believe many of their growers would be successful at such a procedure.

The introduction and credit financing of asparagus as a new colonizing crop was among the most positive aspects of the project as conceived and originally carried out in the Santa Valley. But the company has dis-

continued this policy, finding it economically unjustifiable. Nevertheless, at least one extremely knowledgeable outside agronomist believes that asparagus cannot compete with other more established and more profitable crops unless it is used as a colonizing cultivant.

Greater Labor Intensiveness, Reduced Farm Underemployment. Asparagus is a more labor intensive cultivant than any other of the crops common to the area, corn, beans, sweet potatoes, alfalfa or potatoes. Even when compared to other vegetables which are grown by a few farmers in the area, like lettuce, carrots, or tomatoes, asparagus remains the most labor intensive. Even the tomatoes-marigolds-barley system, a twelve-month rotation which Mr. Conroy is considering introducing since it seems ideal from both agronomic and commercial points of view, would not absorb as much labor per hectare as asparagus does when grown according to ASAGRO's system. ASAGRO advocates production techniques, because of its emphasis on quality and its necessity of year round production, that are much more labor intensive than those previously in use. Most important, ASAGRO collects the harvest thoughout the day and requests growers to harvest the same fields twice a day instead of only once. This almost doubles the labor needed to harvest, since most of the harvester's time and effort is spent seeking out new asparagus rather than cutting it.

Also, ASAGRO's new administration has sought to reorient farm management so that each grower has his total acreage divided into three plots harvested successively. Once established, asparagus is harvested two months out of every six; ASAGRO wants each farmer to be in constant production. This system, which has not been advocated by other processors and

has not been practiced in the more established asparagus areas like Viru, offers advantages to everybody involved. The company benefits because its purchases are more easily spread throughout the year, and also because the constant-harvest system requires growers who live in town to attend their asparagus production daily throughout the year. Farmers benefit because both their income and their costs fluctuate less through the year and because the more stable labor force is easier for farm entrepreneurs to administer and family farmers to supply. Farm laborers benefit because the employment demand is spread throughout the year and because employment positions have the potential of becoming more permanent.

Farm laborers probably benefit most from the increased labor requirements of asparagus; such benefits will be discussed in the section of this report on farm laborers. The group that receives the next greatest benefit is probably family farmers planting asparagus. All of the families are using their full family labor capacity in productive income-producing work. Among family farmers, 68 percent (17 of 25, see Table 5) must hire additional family labor since their own labor resources are insufficient. This situation constrasts sharply with the same family's labor utilization before planting asparagus, when most had only a few hectares under cultivation, and the crops cultivated were primarily corn and alfalfa, the least labor intensive of the area's common crops. Farms that previously got along with labor that consisted of the daily farm chores of children and twenty or thirty labor days a year from adults now require at least two or three adults to work six and a half days per week, farm women to spend half their days with the asparagus, and children to work after school (and for

some children, before school also).* Where family farms previously could not support the family, exported men's labor, and underemployed everyone else's labor; they now support the family, fully employ all family members and provide jobs for an average of two additional outside laborers. ASAGRO has resulted, therefore, in fuller and more productive use not only of land and water resources but of labor resources also.

Greatly Increased Technical Assistance. Another obvious benefit that these 106 growers have received from the company is a truly massive amount of technical assistance. Before occupying their present land, 79 percent of the Santa Valley sample (see Table 4) had never operated their own farm before.** This statistic is perhaps a little misleading, since many who had not operated farms of their own had of course been raised on their parents' minifundia and were therefore familiar with farm lifestyle. Nevertheless, it is clear that as a group ASAGRO's farmers are unusually inexperienced: only three or four had ever previously cultivated asparagus, many of the poorest farmest had never actually been able to get their farms into operating condition before ASAGRO's arrival, and even the experienced farmers often had gained that experience on ecologically very distinct minifundia in the Sierra.

Comparing thei; Santa Valley neophytes with the more experienced asparagus growers in Viru, for instance, company agronomists invariably note that, on the one hand, Santa farmers are easier to work with since they are more compliant and open to suggestions, and on the other hand,

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* Only primary schools are available in the farm areas. Such schools are in session four hours each morning, and the school year runs from March to December; children are therefore available all day during the hottest months of heaviest asparagus production.

**It is worth noting that the 21 percent who had previously owned or rented farms elsewhere were all farm entrepreneurs, not family farmers.

they consume much more of the agronomists' time since their skills must be upgraded even in such basic tasks as how to irrigate and fertilize more effectively in their sandy farm soils.

In their interviews, farmers described the special training that farm laborers require who have recently arrived from the Sierra. The ecologies of the two regions are so different that much farm experience does not transfer and many basic skills must be relearned. Although the farmers themselves do not recognize this, it is reasonable to assume that the agronomists have had the same experience with farmers whose original farm knowledge was gained in the Sierra. Almost half of the farm sample was not born in the Sierras but in various coastal valleys, from Trujillo in the north to as far south as Arequipa. The modal life history of this group is that they were born and raised among farm workers in large coastal haciendas, then spent a period of time in a non-farm occupation before acquiring their present parcel. Although experienced from birth in the ecological conditions of coastal farming, whatever advantage in farm knowledge they might possess over migrants from the Sierra is more than compensated by their lack of previous experience as independent farm operators. Even the most naively provincial of Sierra minifundistas takes an overview of farming that a wage-earning farm laborer does not, and thinks in terms of an annual farm cycle of investment and harvest, of permissible present consumption and mandatory savings, with a necessary naturalness that the wage laborer may never acquire.

Any processing company, of course, which needs to introduce an entirely new crop to small farmer outgrowers faces a massive teaching job. ASAGRO's task was even harder, since in many cases it had to teach not only

the particularities of asparagus cultivation but also the generalities of either small farm management or farm techniques appropriate to the desert colonizing environment. The original management of the company resolved this problem by "taking over" from the farmer, doing for him with the company's hired laborers under the direction of the company's own management. Perhaps this was necessary in the beginning. It certainly was easier, and it would be hard to blame anyone who was daunted by the responsibility of producing so much asparagus so quickly with such poor soils and inexperienced farmers. The original approach had the added advantage, already noted, of making possible a scope and scale of financial chicanery that could not have continued so long unnoted if farmers had been given actual responsibility to manage their own asparagus. With the new management, the emphasis has been much more on teaching, on explaining the why as well as the what,* and on lessening the farmers' direct dependence on ASAGRO.

The new ASAGRO management has changed not only its general mode of operation but also most of the specific recommendations regarding asparagus cultivation. For instance, the company no longer recommends or finances the purchase of natural fertilizers; it recommends different transplanting seasons, seedling sizes, and plant distances; it recommends a different type of chemical nitrate fertilizer, in lesser quantities, applied more often, and at different stages of plants' life cycle; it recommends that

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* On three separate observed occasions, Mr. Conroy took advantage of an unplanned opportunity to present growers with a minilecture on the lifecycle, morphology, and biochemistry of the asparagus plant, complete with photos and visual aids that he keeps ready to hand for the purpose.

harvesting begin based on the maturity of the plantings rather than the length of time since last harvest; and it recommends that asparagus root crowns be buried in shallower beds to produce smaller but more numerous shoots. All of these changes are based either on greater attention to the economics of asparagus production, now that it is understood that the crop is not a gold mine that can easily absorb any excess expenses, or on results of the company's ongoing R & D experiments. The changes seem sound and justifiable, although of course this is not an expert agronomic evaluation. But the changing of so many recommendations in such a short period time, combined with other more basic problems, has contributed to a developing estrangement between the company and its growers.

Before moving on to this important set of problems, this knot of potentially negative consequences, it is important to pause and emphasize the tangible omnipresence in the asparagus growing areas of the company's technical assistance program. Agronomists in their pick-up trucks and farm technicians on their motorcycles or hitching a ride with an asparagus route man, all buzz among the widely scattered asparagus fields in the Santa Valley like bees in a newly blooming garden. ASAGRO-connected vehicles constitute an absolute majority of the motorized traffic on these rutted farm roads. Frequently enough, branch routes owe even their initial existence to this ASAGRO traffic, which first forced a route in and now keeps it passable by regular use.

No more than two weeks pass without a consultation between farmer and agronomist; most keep in contact more often, and sometimes when there is a problem, the two work together almost daily until the cultivation crisis has passed. Except for missionary-sponsored extension personnel,

both Catholic and Evangelical, no other technical assistance agents were encountered in the area. Nor could farmers recall ever having come into contact with any. Yet this area and these farmers have been the "target population" for a variety of government sponsored technical assistance programs over the years, all designed to increase both the productive utility and the small farmer benefits resulting from various programs to extend the expensive irrigation infrastructure. Evaluations of agricultural extension programs often center on an attempt to establish whether or not contact was actually made with farmers, and if so with what kinds of farmers and how many. The agribusiness-based technical assistance that ASAGRO has provided is on a whole other level, as is this evaluation of its intended or unintended social impacts. Here it can be taken for granted that agricultural assistance has been extended and received; the evidence is in the asparagus, both in the plants in the small farmers' fields and in the high quality harvest delivered daily to the ASAGRO collection center in Cambio Puente.

And yet, the peasants themselves don't perceive this. A majority claim that they are not receiving any technical assistance from the company; some even claim that they have never received any such assistance. Objectively, from the point of view of the outside observer, this seems impossible. But there is no denying that the farmers' perception of the situation is very different.

Grower Dissatisfaction. The so-visible presence of such a large field staff from ASAGRO was described by several farmers as a hindrance, not a help. In conversations among themselves, and in speeches from the

floor at the monthly meetings of their Asparagus Growers' Association, they describe ASAGRO's agronomists and technicians as an army of parasites living off the farmers' asparagus production, as a dead economic weight that the farmers must carry on the shoulders of their farming efforts, as an unproductive padded payroll whose high salaries prevent the company from paying better prices, and as mere middlemen artificially inserted between the farmers and the processing plant to absorb the potential profits from both the company and the farmers. Obviously, when these farmers are asked about the company's technical assistance, they answer not in terms of their recollections of any advice they might actually have received but in terms of their general attitudes toward the company, whether it is helping them or harming them, and their general level of satisfaction or dissatisfaction with the project.

There is a lesson here about evaluation methodology: survey items designed to elicit from the respondent a simple reporting of past behavior elicit instead responses that serve better as indicators of present attitudes. But this kind of response from the farmers raises a substantive issue of more immediate concern: why are they so dissatisfied? In a nutshell, the answer is lack of farm profits. But other factors also contribute to the dissatisfaction, and farm unprofitability is itself the result of several contributing causes. Several different sources of this powerful farmer dissatisfaction are important enough to merit an extended explanation: low yields, rising debts, overpromotion, company evasiveness, and "agribusiness normalization."

Low Yields. The original contracts between ASAGRO and the farmers contained in writing the company's expectation that farmers would be harvesting 5,000 kgs. per hectare of asparagus in each harvest after the first two. But the average yield now is only 2,000 kgs. per hectare, the very best yields barely top 4,000, and the poorest farmers on the sandiest soils don't reach 1,500 kgs. per hectare. This is by far the company's most serious problem, the source both of its own economic woes and its farmer discontent. At present yields and prices, the crop is simply not competitive with readily available alternatives; most of the farmers themselves believe that asparagus is not a profitable enterprise, and would not be unless yields surpass 3,000 or even 4,000 kgs. In the Santa Valley sample, two farmers said their asparagus business was profitable, four said that they could not yet answer the question, and twenty-eight stated that they were losing money on the crop. Most of these farmers, of course, had not yet completed their third harvest, which is the first time that the field should be in mature production, but among the small number who had reached that milestone, the median reported yield was only 1,650 kgs., only half of what most said was the minimum necessary to make the business profitable.

What are the causes of these low yields? The biggest problem is an infestation of "mealy bug." This pest attacks the roots of the plant; the Santa Valley infestation is the first recorded instance of this insect either attacking asparagus or living underground. Weakened by the mealy bug, the plant becomes susceptible to fusarium wilt, leading to a 40 percent drop in the plant's yield. Being such a unique infestation, it took

some time to identify and diagnose the problem. Because of the insect's inaccessible location, only a systemic pesticide can be effective. Months of experimentation have identified two possibilities which are completely effective, but time consuming testing is necessary to ensure that these systemic poisons do not leave residues in the canned asparagus. No laboratory in Peru is capable of testing for these contaminants, so the agronomists have been waiting for months for a reply from a California lab. In a sense, the important role of this infestation in reducing yields is an optimistic sign, since this is the only factor for which a quick fix is likely. Yields are also reduced by a cluster of poor cultivation practices: fertilizing the plants with too large quantities, applied too seldom, and at inappropriate times; bedding the plants too deep, which produces fewer but longer shoots; depletion of phosphate in the soil. These problems are also resolvable, although it will take longer to get good results because farmers are following these mistaken practices as a result of bad recommendations by the original ASAGRO agronomists. Farmers have been slow to accept the new recommendations, partly because it is not intuitively logical that using lesser quantities of cheaper fertilizer earlier in the plant cycle will produce better yields at harvests, partly because the present agronomists are not as good salesmen as the original promoters, and largely because there has not been any demonstration effect so far, as the increasingly serious mealy bug infestation has counteracted any improvements in productivity that might have occurred otherwise when farmers have followed the new recommendations.

Yields were also reduced by early agricultural errors that are unfortunately less easily corrected. Many fields simply contain far too

few plants set too far apart, and there it little that can be done about this. Likewise yields will always remain low on plantings that were made in extremely sandy soil, now that tests have shown that purchases of large quantities of manure to improve yields cannot be economically justified at present prices.

Although asparagus productivity will undoubtedly rise once the mealy bugs are treated and other agricultural practices improved, it is highly unlikely that even the best of present plantings will ever reach the 5,000 kgs. level promised in the original contracts, and the average is unlikely to exceed 3,000 kgs. Still, this will almost double the present productivity, sufficient to make the asparagus profitable and to keep the farmers from plowing their asparagus under, even if not enough to attract many farmers away from other more flexible and more profitable crops.

Rising Debts. Like small farmers everywhere, farm debt makes the asparagus growers nervous; their apparent inability to reduce the size of that debt makes them fear for their farms. Their debts were originally projected to be paid off after the third harvest, two years from the planting date. Now, with interest rates way up and projected yields way down, it is expected that farmers will only begin to reduce their debts at that point, not eliminating them until three or four harvests later. These debts represent dependency to the farmers. Most have no other source of income, and until the profits of asparagus increase, they must keep borrowing more. They resent the whole process, but most keep on borrowing. Farmers feel that their debts are static, their harvest deliveries merely

pay for cumulative interest and recent borrowings, leaving the basic debt at the same level as before.

The company is not too concerned about farmer debt, since the rate of inflation is so much higher than the interest rate that nominally static debt levels actually represent 40 percent annual reductions in the real value of the debts. But the farmers, being neither experienced debtors nor experienced inflation-fighting financial planners, do not understand this point of view and are not reassured when the agronomists explain it. Debt peonage is not a far distant historical reality in Peru. Farmers refer to the phenomenon constantly. It is the chief image that comes to their mind in the face of these apparently unreducible debts, and the image brings with it great fear and easily aroused anger.

The Asparagus Growers' Association has demanded that the company forgive the principal and interest incurred before the first harvest, and that debts be reduced also for those farmers who were producing asparagus before the plant was finished and ready to receive it. ASAGRO management in Chimbote has recommended to Lima that some of this debt be written off as a cost of promotion, but top management in Lima has not so far concurred. Meanwhile, the debt issue continues to be a principal source of grower dissatisfaction.

Overpromotion. Since the Santa Valley growers are new both to asparagus production and contract farming in general, they have little realistic reference on which to base their expectations of the company. Satisfaction or dissatisfaction always results from a comparison of actual accomplishment with pre-existing expectation. Whereas the asparagus

farmers in Viru are very satisfied with ASAGRO because they compare it with other asparagus processors in the area, the Santa growers are highly dissatisfied with the same company because they compare it with the company's original promotions. Thus, although yields and profits are low, they look much lower when compared with the inflated promises made by the salesmen agronomists who signed them up.

Present company behavior suffers in comparison not only with previous promises but also past practices. Thus, the present rigorous cost control contrasts unfavorably with the open-handed generosity with which loans were once made. Nothing represents better the farmers' ambivalent attitude toward their debts than this: they dislike limitations on current borrowing almost as much as they dislike the very high debts that result from the lack of such limitations in the past. In part, the farmers' dissatisfaction with the program is simply the result of the inevitable discrepancy between achieved reality and aroused expectations.

Company Evasiveness. In their dealings with growers, ASAGRO agronomists have felt themselves constrained by the necessity of not revealing to the unsuspecting farmers certain important facts about the company operation. Most important of these is the suspected fraud of the former administration. Farmers know nothing of this. Agronomists have tried to serve the interests of justice while not revealing to the farmers the nature of the problem by requesting each farmer to come in and review the status of his debt account, a request which few farmers acted on since they are not aware of the nature of the potential problem, and by suggesting to the central administration in Lima that the company should write off part of

this debt "for promotional reasons." But farmers, meanwhile, who are terribly concerned about the large size of their debt, have not for a moment suspected that the "generous and friendly" former administration might have defrauded them, or that part of their debts probably result from interest piled on top of artificially inflated expenses.

Similarly, both of the agronomists in administrative positions stated in interviews their belief that 50 percent of the Santa Valley farmers will never reach a high enough level of asparagus profitability to fully repay their debts. The least experienced small farmers on the poorest plots, they think, should never have been recruited into the program in the first place; eventually much of their debt will have to be written off as these farmers finally give up on asparagus and turn to some other more promising cultivation. It is vital to the company's interest to recover as much of this debt as possible, of course, so forecasts such as these cannot even be hinted at in talks with the farmers involved. So farmers continue to be agitated by the fear of losing their farms to repay debts that the company, privately, already expects to write off.

Even if these farmers should manage to repay their debts, something which is becoming increasingly possible as Peru's high inflation rate and negative interest ceilings continue to erode the real value of the nominally static debts, the company has already decided not to continue working with isolated and distantly dispersed growers. Even should productivity dramatically increase and the farmers desire to plant more asparagus in the future, they will not be allowed to do so unless a significant number of their neighbors also sign up. And not just any neighbors. ASAGRO has already determined to in the future accept only those new asparagus growers

who are experienced growers and who have the wherewithal to plant 10 hectares of the crop. Out in the most distant and newly colonized parts of the Valley, few asparagus growers have neighbors who qualify. Thus, ASAGRO agronomists are faced with the dilemma that many of their growers have already been privately written off as participants in an unwise experiment that has not succeeded and will not be continued, but they certainly cannot let any of this show to the farmers, or they would be faced with a morale problem far more serious than the dissatisfaction they now must deal with.

Agribusiness Normalization. Part of the grower dissatisfaction is simply a manifestation of an apparently universal characteristic of new agribusiness projects, a phenomenon that might be labeled "agribusiness normalization." To start up operations in a new farming area, processing plants must pursue promotional policies to sign up farmers that are more advantageous than the company expects to maintain over the long run, once enough local growers have signed contracts. Not only in its sales pitch, but also in its initial relative indulgency regarding quality standards, classification guidelines, etc., the company encourages growers to establish expectations about processor-farmer relationships which are relatively more advantageous to the farmer than can be sustained in the long run, once the company settles down to normal operation.

Once past this start-up phase of promotional concessions to its initial growers, there is an inherently conflictual tendency in day-to-day interactions between farmers and processor employees. This is not to say that in the long run growers and processors are not interdependent or the relationship not mutually beneficial. It is the intention here to set

aside such larger questions and to focus on the nitty gritty, smaller scale reality of doing daily business with each other. On this level, it is incontestable that in the daily details of business interaction, the immediate interests of the two parties are in conflict. The farmer would always be better off if he could wring from the company higher prices, lower quality standards, and easier credit terms; conversely, company interests are furthered when its employees get farmers to accept lower prices, higher quality standards, and tighter credit policies. In the start-up phase of its operations, these potential conflicts are minimized by the processor's overriding need to establish a dependable source of raw materials. As the company signs on more growers and assures itself of enough raw materials to sustain a normal level of production, its relationships with its growers inevitably change as the company firms up its defense of its own interests. Normally, then, as a new agribusiness project matures, its growers become at least a little bit disillusioned.

At ASAGRO this transition was more abrupt than usual. The move out of the start-up phase was marked by a total change in administration from a group of promoters unconcerned with costs to a team of administrators instructed to get runaway costs under control. As a consequence of the abruptness of the transition, it was predictable that, leaving all the other factors aside, the increasing grower discontent would have been sharper and more strident than usual.

Founding the Asparagus Grower's Association. Almost as soon as ASAGRO started purchasing asparagus in November of 1979, the Santa Valley growers began discussing among themselves the formation of an Asparagus

Grower's Association to represent the interests of the growers and voice their complaints to the company. This movement gained ground rapidly over the next few months, speared by sharp farmer disagreement with the rising interest rates, the very low initial asparagus price (which had not been adjusted upwards for inflation since the original contracts were signed in 1978), and the daily problems of administrative disorganization.

According to the present administration, which began work in March 1980, the idea of the Grower's Association was actively fought by the earlier administration. The new Administrator says that he changed company policy on this issue. Perhaps he was bowing to the by-then inevitable, but he also recognized the possible benefits to the company of such an organization in terms of improved communication, coordination, and discipline of the growers.

At any rate, almost immediately after the new administration began operating in March of 1980, the Association of Asparagus Growers was formally organized and legally constituted. It at once began collective bargaining with the company, resulting in a rapid succession of price increases, in return for which the Association agreed to reduce the length of the asparagus sold to the company from 25 to 20 cm.

This is precisely the sort of bargaining which illustrates how a collective bargaining unit can, as the new ASAGRO administration hoped, help the company. Without the existence of the Association, the company could never have reduced the size of its asparagus purchases without a prolonged campaign and considerable individual conflict between each farmer and the company field representatives. When the Association agrees to the change, however, as part of an overall agreement that includes a price

increase, then the growers' own Association is coopted to take on tne role of communicating, legitimizing, and disciplining individual farmers' acceptance of the decisions. In return for this substantial advantage, the company gave up very little, since the original asparagus prices were so ludicrously low and the rate of inflation so rapid that its price concessions could have had only the most temporary impact on its overall profitability.

By so quickly organizing their Association and entering into the process of collective bargaining, the Santa Valley farmers demonstrated their organizational and political sophistication, the result of the many years they had spent negotiating with government and agrarian reform bureaucracies. It may be said of the group as a whole and the farm entrepreneurs in particular that they have much more experience extracting benefits from bureaucracies than they have extracting crops from the soil. With a couple of exceptions, it has been the more highly educated and articulate farm entrepreneurs that have provided the leadership for the Association.

So far, the Association seems to have served reasonably well its dual function of representing farmers' demands and concerns to company management and facilitating and legitimizing company communications with its farmers. It serves equally well the latent unintended function of lessening farm isolation and integrating its farmer-members for the first time into a larger social and communication network. Because they live in a newly colonized area peopled by a diverse group of immigrants from all over Peru, family farmers who reside on their parcels have been unusually isolated from any social participation outside their own family unit.

There are as yet no important village community or commercial centers in these areas, no community traditions or established organizations to bind the laborers together or create a sense of belonging to a wider group. For its 106 growers, ASAGRO has somewhat filled this gap. Farmers first got acquainted with each other as they congregated together every second Friday waiting for their checks; recently the company held its first annual field day for Santa Valley growers, a day-long fiesta for farmers and their families at the Cambio Puente collection center. But the Association, organized into four sub-districts which meet together monthly, serves this function even better. For about one-third of the farmers, those family farmers who reside on their farms and do not belong to one of the Evangelical church groups active in the area, the Association of Asparagus Growers is the only organization to which they belong, the only group identity that is based on their new occupation and their new area of residence. Although the Association has one outspoken female member, a farm entrepreneur whose husband is too ill to manage their farm, the Association is a male organization, serving the social integration needs of only the adult men in the family. Women become, as we shall see, even more isolated than they were before the asparagus arrived.

Turning Family Farmers into Farm Employers. Asparagus is such a labor intensive crop that two-thirds of the family farmers must hire outside labor to supplement family workers, despite the small size of family farmers' asparagus plots which average only four hectares per family. Those who do hire outside labor employ an average of two workers apiece during the harvest seasons, eight months a year at present, probably

twelve months in the near future. (For more on the harvest season, see the Chapter VII of this report on farm laborers.)

Most family farmers who hire outside labor do so because their household lacks internal labor resources. Usually such households are nuclear families whose children have yet to reach adolescence. But there are some family farm employers with average-sized plantings and three or four adult family members also working in the fields. ASAGRO calculates that a full-time farm worker is needed for each 1.7 hectares of asparagus, once the plant has matured into full production. In the grower surveys, the results are somewhat lower, 1.3 hectares per worker, a ratio that is the same for farm entrepreneurs and family farmers and for both Santa and Viru. These two figures are not inconsistent, since the ASAGRO ratio is for all farmers, and the lower ratio is the result of surveys of harvesting farmers. Using either ratio, it is possible to project that all but the smallest family farms or the largest families will have a more or less permanent need to employ outside labor. This further transforms the nature of the farm enterprise. As a result of the asparagus project, farmers who could not live off of their own land and had to seek employment to survive have become not only independent farmers but farm employers.

Changes in the Role of Farm Women. Most of the wives of farm entrepreneurs do not live at the farm site and have almost no contact with its operation. With one or two exceptions, even those who live on the farm seem to have no involvement, at least with the cash crops such as asparagus. Family farm women, on the other hand, are as much a part of the asparagus operation as the men. For this group, the switch to asparagus

farming has had just as great an impact on the course of their daily lives as it has on the daily lives of their husbands, sons, and brothers.

To introduce the cultivation of asparagus onto the previously barren acres of their farms has meant at the same time to introduce the "double shift," the dual burden of house and farm work to these women. Like the men, adult women usually work in the asparagus fields, during the harvest seasons, five or six hours every day but Sunday, when the work load is halved because only one harvest is collected. This additional work load is compensated only slightly by a corresponding reduction in household work responsibility. At best, she can afford to worry less about scraping together small quantities of fruits, eggs, or other produce to sell in Chimbote as an income supplement. But none of the women ever spent significant proportions of their energy in such pursuits anyway. If men of the family used to supplement their income by fishing, then she like them has been spared a task that used to consume a significant amount of her time and energy, preparing and peddling the fish in town. But the only activity that most farm women have given up has been some part of the time formerly spent on trips to the town market. Women often now go into town only once or twice a week, and each trip is itself much shorter. No longer seeking to sell in the market, but only to purchase, their time given to the market is both shorter and more predictable.

Picking and classifying asparagus, a most literal "stoop labor," is universally considered by those who do it in Peru to be easier, lighter, and more pleasant than other farm tasks. Men who now do this kind of work instead of other farm labor, either on their own farms or as laborers elsewhere, undoubtedly work longer and more productively, but not necessarily

harder. For them, the impact of asparagus on their work has been nearly ideal: an end to underemployment, greater productivity, greater income, without a corresponding increase in the intensity of the labor. The impact on women's work is in some ways the same (less under-employment, greater productivity) but in some ways different, since it so greatly expands the time spent in necessary work and probably intensifies the non-asparagus work (since there is essentially the same amount to be done with so much less time in which to do it).

It is also less certain that the income of women has been increased. Although family income has increased, the men pick up the check; whether the actual income available to women and their children has increased depends, as before, on the character of the man and the relationship between him and them. Meanwhile, women's independent sources of outside income, little enough as they amounted to, have decreased, since they are no longer engaged in the sale of fish or peripheral farm products in town.

Including both ASAGRO loans and harvest payments in the category of income, as the farmers do, then it can be said that family income and the income actually available to women and children have greatly increased, at least in all the families included in this study. But women and children, at the same time as they are better enabled to meet their basic human needs, are more dependent on their husbands and fathers than before.

For both men and women this requires adjustments in the money-related aspects of their family roles. In the past, men could spend their incomes irresponsibly, at least on occasion, without putting their family into a more than usually desperate economic situation, since women had some separate sources of income. Now he must become much more of a money

manager. Every other Friday he must put in a loan request for money he will receive two weeks later to cover expenses during the two week period after that. Although he gets considerable assistance from the ASAGRO agronomists, this kind of detailed financial planning so far into the future is a new experience. At the same time as he asks for this new loan, he receives a check based on his last request. This check must support not only his family as well as himself for the next fourteen days, but in most cases, the families of his paid laborers as well. Since this increased financial responsibility has been a new burden for him, it has likely taken him some time to adjust. In any such adjustment, the prime victims must have been (in addition to his employees) his own family, who have become his dependents in actuality as well as in ideology.

CHAPTER V

SOCIAL IMPACT: THE ASPARAGUS GROWERS OF VIRU

Background

Viru, the nearest important farm valley to the north of Santa, is eighty uninhabited desert miles away from the Santa Valley plant. An ancient agricultural site, the Spaniards' mispronunciation of its name was by legend the origin of the present name of the country. Like all the other northern valleys except for Santa, its irrigation source, the Viru River, is only seasonal. It has thus been affected, as Santa was not, by the terrible five-year drought that has devastated northern Peru in recent years. The long established systems of collective irrigation have broken down under the water shortage; farming is now dependent upon expensive water brought to the surface by gasoline pumps. Most family farmers of Viru, therefore, own land which they cannot cultivate because they do not own a pump and cannot afford to buy much water from their wealthier, pump-owning neighbors. Whereas small farmers in Santa are in the process of colonizing land never before cultivated, in Viru they have been giving up on parcels that have been cultivated for centuries.

In the 1950s and 60s, Viru agriculture was dominated by the small number of innovative hacendados who pioneered the production of asparagus in Peru. Eventually, ten or twelve of these landowners were farming fifty or sixty hectares of asparagus apiece, either operating small canning plants on their own estates or selling their product to Liber and San Fernando, pioneer processing plants in Trujillo. According to Mr. Conroy,

the head ASAGRO agronomist who was personally familiar with these operations, asparagus yields on these estates averaged 6,000 kgs. per hectare, more than double the present rate.

This export-oriented production system was dealt a severe blow by socialist reforms introduced by the new military government in 1968. Land reform broke up the estates, some of which remained collective farms and some of which were split up into small individual parcels. The Liber processing plant was turned over to its workers as a "social enterprise." Government farm policy emphasized production of basic necessities for local consumption; the small, local, luxury export asparagus business was little regarded.

By 1980, the asparagus industry in Viru was on the verge of going under. The only two buyers, Liber and San Fernando, were respectively disorganized and decapitalized, unable to provide even short term farm credit and not even capable of paying for the dwindling production of the asparagus acreage for which they still had contracts. In 1981, Liber ceased to purchase asparagus altogether and San Fernando, despite an additional line of credit from FRAI, had not been able to expand its purchases or offer even harvest financing. Needless to say, asparagus prices had not kept pace with inflation, but had fallen, so the farmers believed, below the cost of production.

Impact on the Viru Valley Farmers

Saving a Decaying Industry. This is the situation which faced the Viru asparagus industry when ASAGRO appeared on the scene in late 1980. In

the short time it has been operating, the company must be credited with a complete rejuvination of the industry, a turnaround which must be seen as its principal social and economic impact. With ASAGRO the leader, the price of asparagus has risen more than 100 percent* (for first quality product). In the process, the price structure has been reshaped to offer more quality incentive. The company has made available short term credits for existing asparagus farmers. In addition, its purchase guarantees have enabled two farmers to successfully apply for the first asparagus production credits from the Banco Agrario, the Government's agricultural development bank. Though the evidence is sketchy, it appears that total Viru asparagus plantings will increase in 1981, surely the first time this has happened since 1968.

Aside from this macroeconomic impact, the company's operations in Viru have already begun to have direct socioeconomic consequences for asparagus farmers and farm employees. Some of these effects are different from those observed in the Santa Valley, for three reasons: differences in historical and ecological context; different expectations of the company among these experienced asparagus growers; and implementation from the beginning of new policies favored by ASAGRO's present management. Still, the central source of these differences is Viru's status, unique in Peru, as an established asparagus producing center.

More Farm Credit, Higher Prices. The main promotional tool that has brought ASAGRO success in Viru has been its willingness to make short-term loans. These loans are interest-free advances against the next harvest,

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* While the general cost of living rose 65 percent during the same period.

which in the asparagus production cycle is never more than four months away. The practice is traditional in the Viru asparagus industry, but competing buyers are too financially strapped to continue with this kind of credit. The practice, always advantageous to the farmer, is even more so to ASAGRO, since it obligates the farmer to sell his product to them first. ASAGRO also gives the highest price, although the other purchasers have more nearly kept up with the company in this area. As a result of its more favorable credits and prices, ASAGRO is already well on the way to a near-monopsony position in the Viru asparagus market. Liber has for all practical purposes given up the asparagus business, and San Fernando survives primarily because of the remaining contractual obligations of a few farm entrepreneurs and farm cooperatives to which it had made earlier long-term loans.

ASAGRO's rapid domination of the market would be potentially dangerous for the farmers, but competition is on the way. Partially financed by FRAI, the original pre-socialist owners of Liber have formed a new company and almost completed construction of an asparagus canning plant in Viru itself. FRAI has also financed feasibility studies for other potential asparagus processors. The continuation of ASAGRO's present overwhelming competitive advantage is by no means assured.

Less Farmer Dependence, But Less Technical Assistance Too. Viru farmers differ from those of Santa principally because they are, in all aspects of their farming life, more established. They have worked their own land longer, many of them all their lives (see Tables 3, 4). They are older, they have been growing asparagus longer, and their asparagus planta-

tions themselves are longer established. The farm entrepreneurs are somewhat larger, much more experienced at farm management, and more profitably successful. Family farmers, though they have smaller lands than their Santa counterparts and more expensive water, also reap the benefits of older farm investments, fruit trees, animals, asparagus plantations. As a group, their farms are more profitable, their incomes higher, and their standard of living perceptably better (clothing, housing, secondary schools for their children). From their longer experience as independent farmers, Viru agriculturalists have greater farming knowledge, about asparagus but about other crops as well. Most of the smaller farmers concentrate on asparagus, but if they have more land, they tend to grow higher value crops than Santa's corn and alfalfa.

Just as its farmers are more established, so of course is the Viru community. Not a colonization zone, it has a much lower proportion of recent Sierra immigrants. Most people that live there were born there, they remain imbedded in the kinship networks that first nurtured them, provided them with their farms, and still will provide loans or labor should an emergency arise.

All this greater rootedness carries with it customs and traditions which both help and hinder the worker-farmers. Viru farmers have ideas about how to propagate their own asparagus seed beds, how to transplant the seedlings, how little water and fertilizer they can get away with. As a result, they spend less money and get significantly greater production (see Table 10) than the farmers of Santa. But if they buried their asparagus crowns less deep in the soil, their yields would be even greater. And if they harvested twice a day, the higher price and quality would much more

than compensate for the additional labor. For this last reason alone, the quality of Viru asparagus is so much lower than that of Santa, so that even with its greater production, Viru's income per hectare comes out about the same. Thus, the same asparagus traditions that provide a firm base for a secure income also limit the further development of their farming skills and farming incomes.

ASAGRO has so far done little to insist that its farmers follow company advice rather than asparagus tradition. ASAGRO is still new to Viru, still in the first indulgency phase of the agribusiness normalization process. Mr. Loli, the ASAGRO agronomist in Viru, frequently refers to the benefits of shallower beds or twice-daily harvests. But these ideas are simply thrown out into a general conversation, explained only if the farmer picks up on them and starts to ask questions, never strongly advocated for forcefully recommended. This approach is not because of some personal timidity, but a reflection of the initial stage of company-grower relations. With these new growers, the company is still playing the role of the grateful recipient; not until later will it settle in to the normal processor role of the powerful buyer with its own exacting requirements.

A second reason why ASAGRO spends less time and energy telling Viru farmers how to grow asparagus is economy. Since such technical assistance is not absolutely necessary to obtain adequate quantities of acceptable asparagus, the company can cut back its expensive efforts in this area. The company's whole Viru operation is handled by only one unassisted agronomist. The grower-to-employee ratio of the field staff in Viru is therefore almost 80 to 1, compared to the 7 to 1 ratio in Santa. In this

way, the Viru operation reflects ASAGRO's present policies of working only with experienced farmers who need less technical assistance.

Higher Quality Standards, Lower Prices. ASAGRO not only provides its Viru growers with much less financing and little technical assistance, it also applies stricter classification standards, which has the effect of paying the farmers less for their product. In Viru, ASAGRO follows the practice, already established by its competitors, of classifying the product at its own collection center, before weighing and formally receiving the product. The classification is done by a subcontractor, who earns the same small percentage that in Santa is paid to the farmers themselves for this work. The subcontractor provides employment to an overseer, two male porters, and twelve to twenty female classifiers at the Viru collection center.

This system results in much stricter classification norms than those followed by the farmers of Santa. Also, all asparagus is routinely trimmed to precisely 20 cm., which further reduces the purchase weight by as much as 10 percent, compared to the slightly over-length asparagus which the Santa farmers try to deliver. The Viru system results as well in the farmer rather than the company taking the weight loss due to the dehydration of the product as it is transported to the collection center and stored there until it can be classified. Not only does the Viru system result in the farmer being paid less, but he must trust the company more: unlike the Santa system, he plays no part in the classification of his product, nor is he present at its weighing.

Greater Grower Satisfaction. By any objective measure, ASAGRO's outgrower system in Viru is less favorable to the farmers than its original system in Santa. Viru farmers are offered less credit, given less technical assistance, and paid less for their product. Yet Viru farmers are satisfied, and Santa farmers are not. More than that, the Viru farmers are unanimous in the opinion they express in their interviews: they are not just satisfied, but enthusiastically pleased. The farmers of Santa, on the other hand, are nearly unanimous in their very different opinion: with but two exceptions, they are angrily, vocally disillusioned. What could account for such a great and unexpected difference?

First, Viru farmers are making a profit, at least they believe that they are, and the Santa farmers are not. Although gross incomes per hectare are about the same, costs are somewhat lower in Viru and only the Santa farmers have access to long-time credit and the resulting 47.5 percent interest charges. Asked if they thought their asparagus cultivation was profitable, only two farmers in Santa said "Yes," while all of the farmers in Viru answered, "Yes, of course." There is a possibility that this difference is a result of differences in point of view rather than differences in actual rates of profitability. Santa farmers had fairly precise ideas of what were their costs, their incomes, their levels of profit and of debt, because they had been provided this information by ASAGRO agronomists as part of the technical assistance program. Viru farmers, in contrast, had only vague notions of these concepts, since few keep the kind of farm accounts that would be necessary to calculate costs and profits more precisely.

Second, the two groups had different reference points, which result in different levels of e) ectations, always the implicit comparisons upon which feelings of satisfaction or dissatisfaction are based. Viru farmers are satisfied because they compare ASAGRO with the ı wer prices, less available credit, and greater disorganization of Peru's other asparagus producers. Santa farmers are dissatisfied because they compare ASAGRO with the oral and written promises of the agribusiness promoter who originated the project and first convinced them to participate.

Third, ASAGRO's operations in the Santa Valley are three years older than its recently developed Viru program. The relationships between the two groups of farmers and the company are therefore in distinct stages of the agribusiness normalization process. Santa farmers are experiencing the normal conflicts of interests with a processing company that must constantly try to improve its quality and lower its costs. Viru farmers are still in the earliest indulgency or "honeymoon" phase of the project, when the company must play down its self interest in a promotional effort to involve more growers and increase its sources of supply.

Conclusion: A Less Ambitious, But more Workable Agribusiness Model

In sum, the social and economic impact of ASAGRO on the farmers of Viru appears to be somewhat less dramatically positive than its original impact on the farmers of Santa, at least if the possibility of fraud in the original project is not taken into account. But causes of the most dramatically positive of the Santa impacts, the original "making" of small holders' farms and the provision of 100 percent financing, have not proven economically feasible. Such policies could not be sustained and the

expansion of such impacts to other groups of small farmers, either by ASAGRO itself or by other companies following its example, cannot be expected. Moreover, the very aspects of the original Santa project that provided the most positive socioeconomic impact were also responsible for the unintended side effects of dependency and dissatisfaction. The Viru model appears to be the more workable one for future agribusiness planners. Though it strives for less positive impact, its potential negative impact is also correspondingly less, as are its levels of simple economic risk and investment.

CHAPTER VI

SOCIAL IMPACT: THE AMAUTA AGRICULTURAL PRODUCTION COOPERATIVE

Background

Unable to contract sufficient asparagus acreage among independent farmers, ASAGRO in 1979 turned to the agrarian reform sector of collectively farmed cooperatives, a move that was viewed dubiously by the business and financial community at the time. Four collectives signed up, three of them fairly small and quite distant from the plant. This was not a very successful proportion, given the dozens of similar collectives located in the plant area, but it did mean an increase of almost 250 hectares of asparagus plantings. Thus the immediate short-term objective, planting enough asparagus to meet minimum requirements of profitable processing plant utilization, was achieved. The move was expected also to have positive consequences for field staff utilization, since the cooperatives at last represented sizeable concentrations of asparagus.

The four participating cooperatives included: Ancash (24 hectares), located 90 minutes inland from Santa; El Labrador (29 hectares), and Campesino (53 hectares), both located in the Casma Valley 90 minutes down the coast toward Lima; and Amauta (137 hectares), the only participating cooperative located in the same zone as the other Santa Valley asparagus growers.

These cooperatives are made up of the nuclei of former coastal haciendas. The radical Agrarian Reform of 1968 transferred ownership from

the former land owning families to cooperatives made up of the haciendas' farm laborers. These collective farms were a centerpiece of that military government's development program; in the early years, they received large amounts of assistance and production credit from the government's land reform agencies and agrarian development bank. But production declined precipitously, at least on most of the once fairly efficient coastal estates such as these. Loans were used to pay the daily wages and current consumption expenses of cooperative members without any corresponding concern for the daily productivity of that labor.

At Amauta, a series of loans from the agrarian bank were never repaid. The bank forced the cooperative to install an agronomist-administrator in a last ditch effort to improve productivity and maintain labor discipline, but to no avail. Finally the bank, prohibited at that time from collateralizing loans with cooperative lands, auctioned off all but the barest working minimum of Amauta's moveable capital, its farm equipment and its livestock. After the auction, Amauta's 25 members still owed the bank approximately the equivalent of $100,000, a figure which represents 170 person years of wages, at the rate that the cooperative is presently paying its members. The auction over, and the bad debts still hanging in the air, the agrarian development bank walked away from Amauta. With that kind of obligation hanging over their head, the members of the coop gave up any hope of making the collective succeed. They abandoned collective farming, and turned their individual attention to the small plots which each family had abrogated to itself. What little fixed capital was left to them continued to deteriorate. A tractor stood unused for want of a $13 part. Even their homes, many of them converted from former

stables and storage buildings, are in worse condition than when they housed the hacienda's horses.

Into this hopelessness, one day in 1979, marched the ASAGRO promoters. And what promises they offered! 150 hectares of asparagus, at no cost to the cooperative. Their abandoned collective fields would be rejuvenated, even their unused desert acreage leveled and planted. 100 percent financing. Work for everybody, daily wages for all. And in the end, profits so high their loans would be paid off within a year, two at the most. The bank was ecstatic; the cooperative members, skeptical, but feeling the rise of new hope in spite of themselves.

Eventually, 137 hectares of asparagus were planted altogether, half of the cooperative's total acreage. Asparagus covered every square foot of the remaining collective land, excepting only those fields which had been previously partitioned off for members' private plots. ASAGRO stationed a trained Farm Technician at Amauta, his only job to provide technical assistance to the cooperative. Through its usual system of biweekly loans, the company paid for a daily labor force of 70 people, enough to hire all 26 members, the 19 non-members who had built their houses on the coop and come to be considered its stable employees, and even most of the wives and grown children who wanted to work.

Production Problems, Attempted Remedies

But even with such a large work force, the land-labor ratio never dipped much below 2 hectares per worker, much less labor intensive than the ratios in the asparagus fields of private farms. And if the workers were relatively fewer at Amauta, the work hours were that much less. Like al-

most all of the other collective farms in Peru, Amauta distributes work to its members not by the hour but by the daily work task. At Amauta, these tasks are supposed to be the equivalent of a half-day's labor, from 7-11 in the morning, in order to leave the other half-day available for work on private plots. In actuality, it was normal to appear for work at 7:30 or 8:00, and to be finished with the assigned task by 10:00 or 10:30. Though they paid themselves somewhat less than the daily minimum wage, S/750 ($1.76) at a time when the legal minimum was S/898 ($2.11), their daily work tasks constituted only about one-third of the normal work load of employees on private farms, and less than one-quarter of the hard-to-calculate work load of family farmers. Taking these work norms into account, the cooperative's peak employment land-labor ratio is not 2 hectares per worker but 6 hectares per full-time equivalent worker. This was simply not enough work to maintain the fields and produce the asparagus.

There can be no doubt that Amauta has an asparagus production problem. Even in its best fields, harvest yields do not surpass 1,500 kg. per hectare, insufficient to pay current labor costs and interests on its ASAGRO debt. The debt now stands at S/66 million ($131,769) and is still rising. This debt, though appallingly large when viewed in the aggregate, is within the normal range of grower indebtedness in proportion to the number of hectares planted or the number of individual coop members involved. What bothers ASAGRO is not the absolute size of the debt, but Amauta's continuing inability to keep up with the work plan devised by the company's agronomists and its resident Farm Technician to gradually solve the production problems. The explanation for the failure of a succession

of these work plans would seem to be a simple lack of sufficient labor. ASAGRO has cut its biweekly loans to pay for only 45 workers per day, providing work only for the coop members themselves and the resident stable employees. Even if this were successful in forcing Amauta workers to put in their full normative four hours, the land-labor ratio would still be over 6 hectares per full-time equivalent worker. ASAGRO has viewed the cause of the problem, however, not as a lack of labor, but as a lack of management, coordination, and of discipline. No single individual is reponsible for implementing the work plan.

The company took several steps to remedy this situation, during the time that this social impact research was under way. First, it put heavy pressure on the cooperative to hire an agronomist-administrator to manage the asparagus production. It even recruited and selected a candidate for the job, but the cooperative membership refused to acquiesce. Such an arrangement had been forced on them in the past by the agrarian bank and it had not worked then, they said. Paying an agronomist's wage would only add to their expenses and increase their debt more rapidly.

The membership did agree, however, on the necessity of better adherence to the work plan and better management. Toward that end, they elected a new production supervisor, who oversees the work and allocates the daily work tasks. Their old supervisor had not been very disciplined himself, unable to enforce discipline on the other members, and was also said to have a personality clash with the resident ASAGRO Farm Technician. To replace him, they took the rather extraordinary step of electing a non-member, one of their stable resident employees, to become production supervisor. A deeply religious evangelical Protestant, he had the reputation of

being the hardest working and most rigorously honest member of the cooperative work force. At the same meeting, the membership pledged to actually start work at 7:00 and to accept larger work tasks from their new supervisor. According to ASAGRO's resident employee, these actions have resulted in very noticeable improvements. A month after the change, the members were indeed still starting work at 7:00 and continuing with their larger tasks until at least 10:30. Cooperative members believe that, with these changes, they have solved their immediate management problems.

Aside from its other difficulties, Amauta was among the sites hardest hit by the mealy bug infestation. But it was also the site of the company's field trials of systemic pesticides, some of which proved effective. So there is hope that this problem, too, can be resolved.

The Collective Gives Up

The more basic problem of the cooperative, however, cannot be addressed by new pesticides or changes in management. Amauta members have simply given up hope on the possibility of successful collective farming. They see the asparagus project as ultimately only a repeat of their previous experience with the development bank: an agricultural failure whose only result is another impossible debt. Because the collective morale is so low, each member family turns its back on the coop to concentrate all its efforts on its own private parcel, little plots that average 3 hectares a family. Anything that they create collectively, they believe, will simply disappear to pay their debts. Although legally and technically their collective is for their own benefit, they believe that actually the only potential beneficiaries are the bank and the asparagus company. This

is the basic reason why everything collective is neglected, while only their private plots are well maintained.

The extent to which the collective is sacrificed to the private would be hard to exaggerate. Little mixed flocks of goats and pigs, tended desultorily by the small children of their owners, graze contentedly on the asparagus plants of the collective fields. Standing nearby, the cooperative members pay no attention, and even the resident ASAGRO employee has become so accustomed to such scenes that he appears not to notice. Fertilizer for the asparagus must be guarded closely, or it disappears into the private plots. There are rumors that the same workers who apply the fertilizer to the asparagus by day return at night to scrape it back up for their private use.

In such circumstances, it is hard to guess what kind of permanent impact the ASAGRO asparagus may have had on the cooperative. For almost three years, it has been the only source of income for Amauta's members and employees. With expanded collective land, reinvigorated old fields and colonized new ones, it is the only remaining collective responsibility of the cooperative. Without the asparagus, the cooperative would probably have dissolved into illegal but de facto parcelization, as have most of the other cooperatives in the area, including even Ancash, one of the other asparagus producers. In return for all these economic benefits, the cooperative acquired another 227 annual wage equivalents worth of debts.

In July 1981, the membership of the Amauta Cooperative formally petitioned for permission to dissolve the cooperative and divide up its assets. Perhaps the principal impact of ASAGRO was to enable the cooperative members to survive and the collective to continue functioning until

the recently elected civilian government could amend the agrarian reform laws to permit the parcelization towards which the cooperative so long has been tending. The legal complexities of dividing up a permanently installed collective crop and an almost-as-permanent collective debt are enormous, so the precise future for Amauta is hard to foresee. But its life expectancy as an asparagus producing collective is clearly limited.

CHAPTER VII

SOCIAL IMPACT: SANTA AND VIRU FARM WORKERS

Background

The poorest of the groups affected by the asparagus processing plant are neither its direct employees nor its contracted farmers but the farm laborers. These workers are also the largest group involved in the asparagus production. During the time of this research, a daily average of 520 people were working in asparagus fields: 30 employed by the cooperatives, 330 by farm entrepreneurs, and 160 by family farmers. Since almost all of this number were employed as harvesters, and since production declines in the winter months when this research was conducted, it is probable that the year around daily average of asparagus workers would be somewhat higher than 520.

New Jobs. Of these 520 farm worker positions, 355 of them must be considered new positions created by the higher labor requirements of asparagus over other crops. The new positions include all of those on the cooperatives and the family farms and half of the employees of farm entrepreneurs. This calculation is based on reports from coops and family farmers that they could not previously afford to hire workers on a regular basis, and on calculations of the extra workers required by farm entrepreneurs based on a comparison of the land/labor ratios of asparagus and of other more traditional crops.

A great many of the positions on asparagus farms are therefore new positions, and asparagus must be credited with the economic impact of having created these jobs. On the biographical level of interviews with asparagus farm workers, however, this impact was not evident. All indicated that they had never in the past experienced much difficulty finding farm work, and indeed had never spent any significant period of time unemployed on the coast. Apparently the belief expressed by both farmers and farm workers is true, that unemployment is a problem only for those unwilling to accept the illegally low pay and very hard work assignments of a farm laborer.

The Farm Laborer's Life: Poverty and Dislocation

Though not strictly speaking landless, these workers do constitute a distinctly poorer strata of society than even the poorest of the asparagus-growing family farmers. Not only are their standards of daily living lower, but they have accumulated less human and material capital that might serve as a base upon which to build a better future.

In terms of human capital, the farm laborers as a group are less educated and less literate than the farmers. More serious a handicap, their levels of informally acquired coastal coping skills are also lower. Born in the Sierra and still linked to home villages by ties of kin and land ownership, most aspire to a future as permanent coastal residents. Whether temporary migrants or recent and perhaps permanent immigrants, their transition from the Sierra and their assimilation to the coast lags a

decade or a generation behind those of their farm employers who have followed a similar path.

In terms of material capital, they are similarly disadvantaged. Although a majority are land owners, their farms are too small or undeveloped to fully support themselves. Their housing and household equipment, too, are less capitalized. Family farmers, even the poorest of them whose houses are still made of mat and cane, live in permanently established multi-room structures, surrounded by the farm fowl and livestock that represent their main form of savings. Farm workers, by contrast, normally live in temporary-seeming chozas, 12 foot square huts as devoid of furnishings as they are of farm animals. It is true that the dry and mild climate of the area permits most daily household activities to take place outside, but the bare sand exteriors of farm workers' houses also contrast strongly with the farmers' dirt yards littered with the small pieces of equipment used to prepare and cook food, launder clothes, and tend to the animals.

Migration: The great life-shaping fact of farmworker existence. A look at Tables 18 reveals that three-quarters of the farm workers interviewed were born outside of the Santa and Viru Valleys (Table a), but that two-thirds of them would like to remain where they now live (Table c). Though most aspire to settle down permanently on the coast, they are not in any condition to do so easily. Two-thirds of these workers live on their employers' farm in chozas (huts) made available by the farm owner (Table c). Such residencies must be short-term, temporary arrangements; more than half the farm workers had worked for the present employer less than six months (Table 19a).

This pattern of short-term work and temporary residence results from the normal practice followed by most farm owners of replacing their farm workers regularly. This practice, originating probably in an earlier time when most farm workers were in fact temporary migrants with families back in the Sierra, has been continued because it is in the economic interest of the farmers to do so. By regularly replacing their help, they avoid a sense of moral obligation to their employees, as well as the legal obligation to provide a wide range of economic fringe benefits to which "stable" employees are legally entitled. By law, an employee becomes "stable" after three years of employment. Farm owners, like virtually every other private employer of minimum wage labor in the area, avoid such obligations by regularly replacing their workers.

Such employment insecurity and the resulting residential impermanence constitutes the single greatest social problem, aside from simple low-wage poverty, faced by farm workers. It greatly increases their dependency, renders them unable to plan for a better future or to improve their life style through the gradual accumulation of housing improvements and household goods. Compared to the minority of farm workers who have managed to acquire a permanent off-farm residence, temporary on-farm employees are more socially isolated, lacking in local acquaintanceships. Prevented from setting down even the most fragile of roots, their children are cut off from school and they themselves are cut off from the kind of neighborhood contacts which sometimes serve as economic resources for the poor, sources of information about employment or land-occupation possibilities.

Summing up, employment insecurity and the resulting residential impermanence is harmful to farm workers and their families because: it

increases their dependency; it prevents them from planning for the future; it isolates them from potentially useful coastal contacts; it blocks their desire to become permanently established immigrants to the area; and it therefore reinforces their absolute poverty.

Social Impact on Farm Laborers

Attempts of previous Peruvian governments to solve these problems of farm workers through legislation and collective farm worker organization have proven unsuccessful, too weak to combat the powerful negative labor market forces generated by economic depression and unemployment. A widespread switch to labor intensive asparagus growing could conceivably affect these labor market forces by greatly increasing the demand for farm labor. But this seems unlikely, given the magnitudes of unemployment and underemployment in the area compared with the relatively modest profitability of asparagus cultivation so far. But asparagus, due to the technical and organizational requirements of its cultivation rather than its impact on labor demand, does tend towards alleviating the employment insecurity of asparagus farm workers.

A Tendency Toward Longer-Term Employment. Managed according to the recommendations of ASAGRO agronomists, an asparagus farm has remarkably little seasonal variations in its demand for farm labor. Under the ASAGRO system, asparagus plantings are divided into three separate harvest parcels, resulting in each farm sustaining twice-daily asparagus harvest throughout the year. Under such a system, any dismissal of farm workers ceases to be a "natural" response to the seasonal ups and downs of farm

labor requirements. It becomes instead an arbitrary act, unjustified by any decline in the work to be done and inconvenient to the farmer himself, who must replace, by the start of the next day's harvest, any laborer that he lets go.

Farmers are extremely reluctant to take on a permanent labor force. Only seven (14 percent) of the farmers interviewed had even one worker who was considered to be a "stable" employee, and of those seven, only one claimed that he was paying the full fringe benefits (vacation, retirement, bonuses, etc.) to which such employees are entitled. But farmers also find it very difficult to dismiss arbitrarily someone whose work is not deficient. Several farmers spontaneously raised this issue in their interviews, expressing the wish that farm workers would turn themselves over rapidly enough to relieve the farmers of their dilemma.

A Tendency Toward Lesser Exploitation. In effect, the stabilization of employment in the asparagus fields has a built-in tendency to reduce the presently universal exploitation of the farm workers. A slight majority of the farmers interviewed pay somewhat less than the legal minimum wage. Only one farmer even claims to pay the legally required package of wages and fringe benefits. Many farmers follow instead the widespread practice of paying a smaller bonus at the time they dismiss their employees, the amount of which varies from a few weeks' pay to a few months' pay, depending on the length of the employment tenure. Farmers justify these exploitative practices on the basis of tradition, their acceptance by the unemployed at the time they are hired, economic necessity, and the law which says that employees are not entitled to the fringe benefits until after three years of employment. The first two rationalizations, tradition and

the willingness of the desperate to accept illegal employment practices, are self-justifications universally applied in these situations. They do serve to point out, however, that farm workers in these conditions are probably not suffering from a standard of living lower than that which they previously experienced in the Sierra, but simply one that is not as high as law entitles them to enjoy.

The economic justification for illegally low pay is worth a more analytic comment. It is probably true that at present levels of productivity, asparagus farmers would have to sustain losses were they to pay the legal compensation to their laborers. Although ASAGRO bases its calculations of farm costs and profit levels upon the legally required standard of compensation (thus probably evading any possible charge of complicity in illegal treatment of asparagus workers), it also in the same calculations assumes a level of productivity 40 percent higher than Santa farmers are currently experiencing. Achievement of ASAGRO's assumed levels of productivity is probably a not unreasonable short-term goal, but meanwhile farmers must short-change their employees, or make up the difference with funds of their own, funds which few if any of them possess.

The legal argument, that adequate compensation is only required for "stable" employees with more than three years' seniority, points to the glaring internal contradiction of the Peruvian labor statutes, which set high standards for the compensation of workers, then allows for a loophole large enough to accommodate virtually the entire Peruvian privately-employed labor force. In their present form, the idealistic labor laws harm these farm workers more than they help, since they contribute power-

fully to the instability of employment and the subsequent impermanence of residence.*

Easier Work. The principal impact of asparagus on farm worker existence stems from the circumstances that have been already described: it is steadier work, with a steadier source of income, and with greater potential of enabling those who so desire to migrate permanently to the coast and of transforming clearly exploitative temporary employments into potentially more permanent and more equitable arrangements. Specific changes of farm workers' family standard of living and life styles are hard to discover. As the workers themselves said, in interview after interview, "work is work." This work does not seem different enough from the kind of farm work they had done previously to make much of an immediate impact on their own lives or those of their children.

But if asked specifically to talk about the differences between working asparagus fields and other types of farm work, almost every farm worker interviewed characterized asparagus work as easier, lighter, less fatiguing than other kinds of farm work.

Asparagus work is lighter than work with other crops because a whole basket of asparagus, which takes hours to collect, does not surpass 35 pounds in total weight. The harvester of corn or potatoes, on the other hand, becomes weighed down under a heavy sack within minutes. Also, tractors are used for almost all the heavy cultivation tasks in ASAGRO-contracted fields, eliminating most of the ploughing and heavy shovel work

*A majority of the plant workers are similarly injured by their employer's response to these laws. See the next chapter for details.

traditional to the area. Asparagus work is "light" and "easy" only in comparison with traditional farm tasks, of course; in the United States, the harvesting of white asparagus would be considered unendurable stoop labor.

It is quite possible that the lighter character of the work, regarded as of little importance by these Sierra-tough workers in their interviews, does have important long-term consequences on health levels of these workers. If the work burns less calories, perhaps the endemic nutritional deficiency of this population is thereby reduced; perhaps a healthier and less exhausted worker interacts differently with his spouse and children. But such ideas are purely speculative, as this research was not designed to evaluate nutritional impacts, and since any such behavioral changes were neither directly observed nor reported by farm workers or their families.

A Tendency Toward Increased Employment of Women as Farm Labor. The fact that asparagus work is so widely regarded as easier than normal farm work, however, points to two potentially far-reaching possible changes in the asparagus worker population. It is possible that lighter work may accelerate the already discernable change in the work force from temporary Sierra migrants to permanently situated coastal residents. Coastal farm owners have traditionally sought Sierra labor because they worked harder and stood up for their rights less than their coastal counterparts. That this former characterization, at least, was not merely a stereotype was suggested by these research interviews, often conducted with farm workers encountered at work in the fields. Spotting us approaching from across the

fields, some workers stopped what they were doing at once to await our arrival; others simply refused to stop working at any point, forcing us to ask questions and take notes while jogging beside them as they zipped up and down the rows, heads bent down to the level of their knees so as not to miss an asparagus. Invariably, the former group would turn out to be local residents, the latter temporary migrants just down from the Sierra. Perhaps asparagus work is enough easier so that farm owners need no longer concentrate on this cultural difference. The old practice of absolutely preferring fresh Sierra help had obvious socially negative consequences, since it encouraged people to migrate, then once they had settled in, made it harder to find work.

The other obvious implication of the characterization of asparagus cultivation as "light" work is the potential employment of women. Although women often work in fields, even as farm laborers, during short peaks of seasonal activity in the area, picking cotton or planting potatoes, they are normally disqualified from farm employment that is relatively steady and non-seasonal in nature. But the survey sample included one young woman who worked every day picking asparagus, and one family farmer was interviewed whose work force consisted of his own family and two middle aged women who lived nearby. From observing his own daughters, this farmer had decided that asparagus was ideal women's work and had actively recruited his two women workers. He paid them a salary that was in the lower end of the range, but by no means the lowest. This figure was S/100 (23¢) a day less than he estimated he would have had to pay to men, but he claimed that the greatest advantage of employing women was not their lower salary but their supposed better ability to spot every single asparagus.

The pay differential for identical work, illegal anyway, is not common in this area, where most jobs that employ both men and women at the same tasks pay the same rate, normally the minimum wage. Unless this normal practice of equal minimum pay were to be overturned--not too likely given the ideological climate of opinion in the area--then any large-scale transition from male to female labor in asparagus would probably be motivated by the cultural and ideological beliefs, which are widespread, that women would make more careful and more tractable workers than men. But this is another impact that is still more potential than currently actual. Nevertheless a start in this direction has been made, since these three women asparagus workers were the only full-time, relatively permanent, non-family farm workers that informants in the area were aware of.

CHAPTER VIII

SOCIAL IMPACT: ASPARAGUS PLANT EMPLOYEES

Close by the southern banks of the Santa River, in the center of the old established irrigation fields and not too far from the Pan American Highway, lies the old town of Santa. A couple of miles down the highway to the south lies the small fishing village of Coishco, with its four fish canneries; another few miles beyond that lies the city of Chimbote.

Despite its proximity to these fishing and industrial centers, Santa remains strictly tied to agriculture. Before the opening of the asparagus plant, the numerous Santa residents who earned their living in nonfarm work had to commute out of town to do so, women down the road to the Coishco canneries, men all the way to Chimbote. The only large scale employers in Santa itself were the six agricultural production cooperatives. Other enterprises, the corn mill, the two bakeries, the bus company, the family-run stores and artisanal shops--none of these employed more than seven or eight people. The larger Coishco canneries employed more Santa residents than all of these enterprises put together.

Santa suffers from an unemployment problem, especially among its males who are not much employed by the canning plants, but this problem, like other economic and social troubles, is not as serious as it once was. From a small church and market center with a few hundred residents in 1960, Santa boomed over the next two decades. A mushrooming growth of shanty

town "pueblos jovenes" transformed the town, filling it and several nearby settlements with the rectangular grids of poor peoples' slowly self-constructed urban housing. So much time and so much growth from the last census, nobody in town has a very precise idea of its present population, but the local leaders interviewed gave estimates of approximately 12,000. The people who arrived over this period of remarkable growth were essentially refugees. Dislodged from their place of previous residence by social upheaval and natural disaster, they ended up in Santa only because it was relatively unaffected by the earthquake that devastated Chimbote and other towns all around and unaffected by the drought that ravaged all the agricultural areas to the north. With no economic base capable of absorbing the new arrivals, poverty and unemployment prevailed.

By the time the asparagus plant was constructed in 1979, however, the town had already begun to settle down. Immigration had tapered off since the mid-1970s, the fish canneries had opened in Coishco, and the pueblos jovenes had turned themselves into established neighborhoods of permanent houses served by a minimal necessary infrastructure of public utilities and commercial enterprises.

But it was the asparagus plant that gave the town its first important economic base, the first large scale source of nonfarm employment. When the plant opened in November 1979, it employed 125 workers. This number grew rapidly and steadily through the first summer and winter to a peak in March 1981 of 490 workers. With the approach of winter, asparagus production declined in 1981 for the first time. By the end of the research in July 1981, only 355 workers were employed. The overall average for

the first six months of 1981, according to an official company report, was 432 employees.

Although production will always be somewhat seasonal, ASAGRO agronomists are working to arrange for a more stable distribution of harvests as farmers reorganize their plantings for year round production. If they succeed in this effort, these employment figures (which incidentally include only production workers, not administrative personnel) should show less fluctuation in the future.

The plant managers, Engineer Marco Castillo and Mr. Hugo Pena, also plan to reduce seasonal fluctuations by processing pineapple or other fruits on the second assembly line when it is not needed for asparagus production. Any such production, at least at first, would involve small quantities of fruit purchased on the open market.

The difficulty of adjusting to high levels of asparagus production was not the only problem the plant faced last summer. In mid-December 1980, only 13 months after the plant had begun operations, many of its workers staged a week-long sitdown strike. The precipitating cause of this dispute was management's plan for distributing Christmas bonuses in varying amounts, according to each worker's seniority in the plant. The workers expected and demanded an equal bonus for everyone. Obviously, though, such an issue does not result in a sitdown strike, especially in a non-union plant, unless there already exists high levels of dissatisfaction among the workers. This appears to have been true at the asparagus plant.

The widespread dissatisfaction represents an attitudinal impact of the plant which will be described and analyzed later, but it is important to note early on its presence, almost since the first days of the plant's

operation. When it first opened, the plant was under the management of the original promoters who also administered ASAGRO. At first, some of the production workers spent weeks or even months "practicing" their work tasks, an unpaid period of time during which the workers ostensibly were demonstrating their ability to learn the necessary skills before the company took them on as paid employees. This practice was unanimously discussed and condemned by town leaders in their interviews, but it curiously was not raised by the workers themselves. Like the farmers, they appear to have become more dissatisfied with the new management, in this case Engineer Castillo. Though less exploitative, he was at the same time less personalistic and paternalistic. An engineer who has concentrated his efforts on the technical aspects of production, he was recruited from his former position as the plant manager of San Fernando, the company's chief rival in Peru. In the aftermath of the sitdown strike, top management in Lima sent him an assistant, Mr. Pena, a long time trouble shooter for the Grupo Bertelo, with a background in matters of business and personnel administration. With the formation of a formally elected Grievance Committee, with Mr. Pena's return to a more personalistic management style, and with the nonrenewal of a few (but not all) of the strike leaders' contracts, the company has avoided a recurrence of production-disrupting disputes, although the level of worker dissatisfaction, as the interviews indicate, remains high.

Three Groups of Female Plant Employees

Women come to the plant from different backgrounds--different work, household, and family contexts. Since their new jobs affect them

differently, depending on their previous experiences and life styles, it is possible to speak more specifically of the impact of their work if these different backgrounds can be taken into account. Though each woman is unique, the survey results indicate that it is helpful to describe the work force as made up of three groups. Youths make up 19 percent of the sample (8 of 43). Younger than the rest, with neither previous work experience nor family responsibilities, these women either live in their parents' households, or they have recently come to Santa to board with aunts and uncles and to work in the plant. Experienced factory workers make up 35 percent of the sample (15 of 43). These women came to the asparagus plant from similar jobs in the fish plants of Coishco or Chimbote. They come from households that have adjusted themselves to these women's work and grown dependent on their income. Although a third of this group are unmarried, most no longer live with both parents but in households where others depend on them to maintain and support the household. As a group, these experienced workers have been least affected by their new employment, since it has wrought little change in their work or family roles. As a group, these workers are also more vocally dissatisfied than the others. First-time factory workers, all of them married* with children, make up 47 percent of the sample (20 out of 43). All of these women have come to factory work for the first time; most had never worked outside the home at all, but a few had worked occasionally as farm laborers or domestic employees. This group's households have been most affected by their employment; they are also the group happiest with their work and with the changes in their personal lives that have resulted.

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* One is widowed.

Economic Household Impacts

According to interviews with some of the employees, it takes 2.0 to 2.3 full-time minimum wage incomes to support an average size household (seven people) at a "subsistance" level, the standard of living which the people of Santa now regard as minimally acceptable. It must be emphasized that such a standard of living is entirely based on local cultural norms. It is not based on any scientific studies of minimal standards of living, and in fact is clearly substandard in terms of health maintenance and nutritional requirements. Nor is it based on wider national averages, since it is a higher standard of living than that enjoyed by family farmers (let alone farm laborers) in the Santa Valley, and presumably much higher than prevailing standards in rural areas of the Sierra.

Santa's culturally defined level of subsistance can be characterized as follows. Housing: an owner-built house, probably of incomplete construction, in a pueblo joven, rent free but with payments needed for electricity and cooking fuel. Nutrition: one full meal per day, plus two meals where a drink and bread are the primary ingredients; no milk, meat once or twice a week. Clothing: one special outfit and three-four everyday outfits per adult; shoes and two outfits for each child above the age of five. Household goods: a stove, a radio, some furnishings, cooking utensils, tableware, various other plasticware. Transportation: fare for weekly trips by bus or collective to Chimbote, for daily trips if members of the household work in Coishco or Chimbote. Schooling: children of primary school age are expected to attend, clothed with the government-prescribed uniform and supplied with books, paper, pencils.

The number of minimum wages necessary to support such a standard of living fluctuates widely, due to the high rate of inflation and the government's periodic adjustments to the minimum wage. But two full-time minimum wages, at least, have been necessary lately. Among the plant employee households surveyed, all but canning plant employees and a few full-time urban workers who commute to Chimbote are either underemployed or underpaid. That is, all other income earners, whether farmers, fishermen, farm laborers, or self-employed, either cannot find six days of work each week or do find such work and receive less than the legal minimum wage for their efforts.

Taking all such variables into account, it can be calculated that less than half of the surveyed households receive two minimum wage incomes and thus can sustain what they consider to be a "subsistance" standard of living. Specifically, a subsistance or better standard of living is enjoyed by 63 percent (5 of 8) of the youth's households, 40 percent (9 of 15) of the experienced workers' households, and 25 percent (5 of 20) of the first-time workers' households. Thus, there is a great deal more poverty among the first-time workers than among the others, but overall only 44 percent (19 of 43) of these households are able to "make ends meet." Since most of these women live lives that they perceive to be blighted by poverty and material deprivation, it is not surprising that almost all of them spent almost all of their income on such basic human needs as food and clothing (see Table 22). Only five percent (2 of 43) report that they are able to save any of their earnings, seven percent (3 of 43) that they are able to spend some portion of their wages on entertainment. On the other hand, 91 percent (39 of 43) spend their wages on food, 73 percent (31 of

43) on clothing for themselves or their family. Although most of these women report that their employment has brought a positive change to their home by improving it economically (see Table 23), most describe this as a partial relief from previously overwhelming economic problems, rather than as a significant improvement in their material standard of living. Thus, their wages help them to hold down or even reduce their debts at the local store where they buy most of their food, saving them from the threat of having their store credit and therefore their food supply cut off, but most don't believe that there have been significant improvements in the quantity or quality of the food that they purchase from these stores. Likewise, the minority of women who say that their jobs have brought economic improvement to their own personal lives describe it as a reduction of anxiety over mounting debts and increasing poverty (see Table 23).

The only women in the survey who believe themselves to be living better as a result of their new jobs are three youths whose wages represent a third or fourth income in their household and two older women whose spouses have unusually good jobs (maintenance mechanic in a Coishco canning plant, bank employee in Chimbote). The economic situation of other families reflects the enduring economic crisis of Peru as a whole, where continuing high inflation has so eroded the average wage earner's buying power that households must send more of their members into the paid labor force simply to maintain the same standard of living that they had attained during the economic prosperity of the early 1970s. To pursue such a strategy, Santa households needed significant sources of employment beyond those which were previously available. The asparagus plant has met this need. Its principal economic impact, then, is to allow these families to

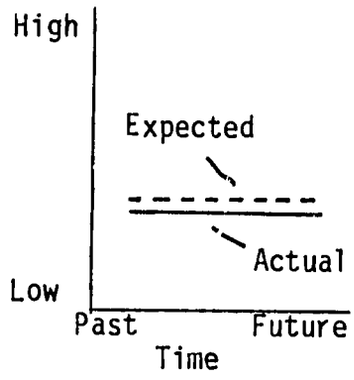
maintain their standard of living better than they otherwise would have been able to do. Thus the impact of the asparagus plant on the families of its employees has been to allow them to preserve a standard of living which otherwise would surely have deteriorated, or in some cases, to prevent their standard of living from deteriorating even more severely than it already has.

Counteracting the negative impact of decreasing real incomes, to maintain a previous level of consumption, is just as real and just as important an economic impact as would have been the case if a less negative economic environment had permitted these wages to bring about an actual increase in these families' standards of living. But of course such a status-quo maintaining impact is harder to perceive. It raises no hopes, brings no satisfaction, certainly engenders no gratitude.

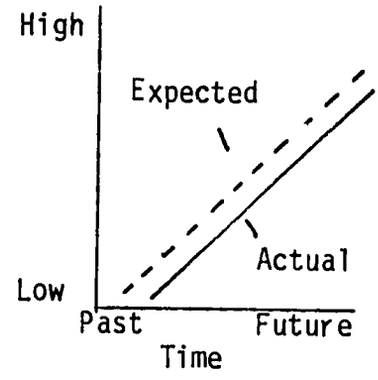
In light of the high levels of dissatisfaction found among plant employees, a personal impact discussed later in this chapter, it is worth a slight digression to describe the theoretically predicted consequences of the plant's economic impact on its employees. Figure 1 illustrates the economic situation of asparagus plant employees compared with various hypothetical outcomes predicted by the widely used J-Curve theory of the relationship between economic conditions and social unrest.

Situation A is the hypothetical case of no growth that perhaps would have characterized these employee households had they not participated in the economic development of Peru and particularly of the province of Ancash between 1960 and 1975. Situation B describes a hypothetical case of steady economic growth, such as these households might perhaps have enjoyed if the asparagus plant had come to Santa in a time when the rest of the town's

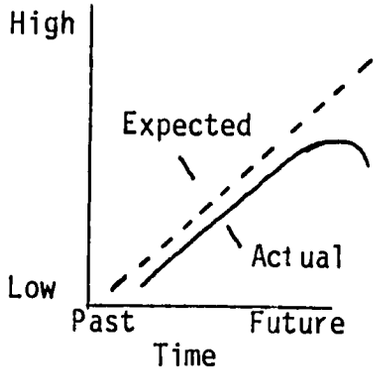
Figure 1



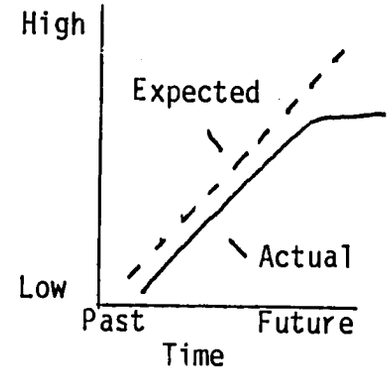
Situation A. Stability: discontent, social unrest improbable.



Situation B. Steady Improvement: discontent, social unrest improbable.



Situation C. J-curve: discontent, social unrest probable.



Situation D. Impact of asparagus plant on its employees: discontent, social unrest less probable than Situation C.

Figure 1. Asparagus plant impact on employees' standard of living, compared with J-curve theory of social unrest.

economic environment was not so rapidly deteriorating. Neither of these two situations results in a gap between expected and actual living standards, thus discontent and social unrest remain improbable. Situation C describes the hypothetical case of a deterioration of living standards after a period of sustained improvement. This is the situation in which the plant employee households probably would have found themselves had the asparagus plant not come to Santa. The disjuncture of the J-Curve of actually deteriorating living standards and the straight line of still-rising expectations leads to an increase, so this theory predicts, in the probability of discontent and social unrest. Situation D describes a case midway between the social calm of Situation B and the social unrest of Situation C. This is the situation that best describes the actual experience of plant employee households as a result of the impact of asparagus plant wages. Although an actual deterioration in living standards has been prevented, there remains a growing gap between rising expectations and achieved reality. The theory predicts that discontent and social unrest, though less probable than the case in Situation C, are still a quite possible outcome.

Household Impact: Access to Services

As part of the fringe benefit package available by legal mandate to permanent employees, those production workers who are not on temporary contracts* can get company-funded health care at a clinic in Chimbote. The fringe benefit package also includes paid sick leave, maternity leave

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* Ninety-six, or about one-third of the average daily employment in July, were permanently employed "stable" production workers.

and other such amenities that provide better economic security to employees and their families. Because of these benefits, the sickness of a stable employee does not cause catastrophic expenses or cut off income as would be the case if a temporary employee became ill. Such benefits add greatly to the peace of mind of families for whom this income represents the difference between bare subsistence and starvation.

The issue apparently had some importance to the employees, since it emerged spontaneously in many interviews. Contract employees several times mentioned that freedom from economic anxiety an important result of their work, was theirs only insecurely and temporarily. Permanent employees, on the other hand, cited economic security and sickness benefits as very important advantages of their jobs.

Although employees in their interviews emphasized these benefits as insurance against loss of income in sickness, the access to health care would seem to be of equal importance. Very few of these households are in any financial condition to pay for health care; when the need arose, they have in the past turned to low-cost governmental and private clinics. But the government clinics, always inadequate according to interviews with town leaders, are even more understaffed and underfinanced than before. At the same time, the Plan Padrino (Foster Parents' Plan) has shut down its office in Santa, and indeed its whole program in Ancash, due to a long standing labor dispute with its professional employees. As in its economic impact, the plant's health service benefits to its permanent employees take on additional importance as other service agencies in the area are cut back and trimmed down.

To oversee and administer its employee services, the company employs, again as the law requires, a full-time social worker, Ms. Raquel Altamirano. As part of her duties, she is supposed to interview and develop a file for each employee which contains information on their health, their families, and their homes. The purpose of this information is to provide a profile of any special needs that an employee might have, to be used by the social worker in her counseling and in her decisions regarding employee requests for salary advances, leaves, or health services. In practice, however, these interviews and these files have only been undertaken for permanent employees. Temporary employees, though technically eligible for some of these services, do not as a practical matter receive them unless their contract has been renewed enough to give them several months seniority in the plant.

Household Impact: Housework Roles

In no other aspect of their life are the three groups of plant employees so clearly distinct as in the effect of their work on their household duties, child care, cooking, cleaning, washing, and shopping. For many of these women, work in the factory means taking on a true "double shift" of paid and unpaid labor. For others, factory work has freed them from any household responsibilities. In general, the amount of housework for which they are held responsible depends on the composition of their household and their place within it. Normally, workers can escape housework only if there are other women in the household available to take it on. In a few exceptional cases, however, some of these duties have

devolved onto household men, onto related women who live nearby, or onto paid domestic help.

When asked about their household responsibilities, women in the youth group were unanimous in characterizing the question as not applicable, for they had no such responsibilities. What they meant was that their mothers with whom they still lived or their aunts with whom they boarded continued to serve as female heads of households, still responsible for the carrying out of all domestic tasks. In the case of these youths, therefore, it at first appears that their employment has had no impact on their household responsibilities: such tasks were not their responsibility before they went to work, neither had they become their responsibility now. But these young women are all over eighteen, the oldest is twenty-seven. Had they not gone to work in the factory, it is virtually certain that they would have spent their days doing household work under the direction of their aunts or mothers. Certainly, unemployed young women of the town, of their same age and unmarried status, do not spend their days in unoccupied idleness. In point of fact, when an insistent follow-up is made to this question, the young factory workers admit that they did more work around the house when they were younger and unemployed than they do now, but that in fact they still do some work on Sundays. They are correct in stating, however, that while they may do some work, this is no longer an indispensable expectation of their role in the family, no longer a "responsibility" of their own. In general, youthful factory workers have been spared the "double shift" of women's work. Household responsibilities that might have begun to devolve upon them from older women in the family continue to remain the duties of their aunts and mothers.

On the other hand, older first-time factory workers, all of whom are married (or widowed), have felt the burden of overwork most heavily. Forty percent of them (8 of 20) receive no assistance at all in their household tasks, which they perform before work in the morning or on Sundays (see Table 23b). None of the employees in the other two groups are left so burdened to go it alone like this. Only seven of this group live in households where there are available a mother, a daughter, or other female relative for whom it is "natural" to take over some household tasks. In the remaining five cases, some household duties have been taken over by men (spouses and a teenage son) or by related women who live nearby but in other households. It is these latter two arrangements which are most troublesome, the cause of family disputes and spouses' demands that the women quit work, something that in fact three out of the five plan to do. Nor are these arrangements very satisfactory when major household responsibility falls on a daughter or sister under fourteen years of age, as is the case in three households.

These are the women whose employment has required the greatest change on the part of other members of their families as well as themselves. These changes have caused the most tension and conflict within these families, either because the men or other women who have taken on these tasks are unhappy about it, or more frequently because some of these tasks are being neglected altogether. Most frequently mentioned and causing greatest concern was the lack of adequate child care in some of these families. One mother of six, for example, was holding her youngest, a six month old infant, while answering the interview questions. Asked, toward the end of the interview, who cared for her children while she worked,

tears started down her cheeks, "although it is a sin, may God forgive me," she said, she had no choice but to leave all six alone in the care of her oldest, a nine-year-old. The infant, who cannot be fed until her mother returns from work, is very good about it, said her mother, and does not cry. For reasons like this, forty percent (8 of 20) of the first-time workers stated that their employment has had a negative impact on their home and especially on their children. Of the other women in the survey, only two (9 percent) had such a response.

Experienced workers report many fewer such problems. Presumably because of their greater length of work experience, or perhaps because factory workers whose families experience such difficulties never go on to seek a second factory job, experienced workers have generally found satisfactory methods to ensure that household tasks are accomplished by other women who seem both willing and able to accomplish them. The most common arrangement, reported by one-third of this group (5 of 15), involves adding a related young woman to the household, a sister, cousin, or niece. She becomes a surrogate housewife for the wife and mother turned factory worker. Other women in this group have adult daughters who take on this role, or elderly widowed mothers. Two of this group pay neighbors to cook and take care of the children, the only two in the sample to report such an arrangement. This is something of an innovation in social relations in Santa, because women of the socioeconomic status represented by both the domestic employers and domestic employees in this arrangement have seldom in the past either hired maids or worked in that capacity. Such domestic employment as previously existed in Santa normally consisted of young women

coming fresh in from the countryside to live and work in the homes of the town's few well-to-do families.

Although these experienced workers have made arrangements and adjustments to ensure that domestic responsibilities are met, this should not be taken to imply that their family lives are all peace and light. Twenty-seven percent (4 of 15) report that their husbands object to their working, a percentage not that greatly different from that of the first-time workers (see Table 23a). But their interviews show them much less disturbed over these differences. For most in this group, factory work has simply become a necessary fact of life, disagreeable to most, but economically indispensable. For most, the switch from fish canning to asparagus canning has meant simply more of the same, rather than a whole new life style. Sixty percent of the experienced workers (9 of 15) report that their new job has brought no change to their life, a response reported by only 21 percent (6 of 28) of the women entering factory work for the first time.

Personal Impact: New Work Roles

Even if their new jobs have caused conflicts at home, many of the first-time factory workers feel that the trade-off was well worth it. This is especially true of women over thirty, no longer experiencing more traditional women's work roles in the home, on farms, or as domestic employees. Fifty percent (10 of 20) of the first-time workers report that their new job has brought an improvement in their life because the way they spend their working days is much preferable to the old. The people who gave this

response are mostly stable workers, which is probably significant, and almost all of them are in the upper age range of the sample, 32 to 42 years old, probably also significant. These women described their new job as preferable because it was easier, better paying (than farm work), more defined in terms of task and in terms of time. But most frequently and most enthusiastically, they said their new work was better because it was performed in each other's company. Work in the asparagus plant is less lonesome, less isolated, more full of opportunity for friendship, conversation, and community. While none of the experienced workers thought that their new work had changed their lives for the better, except perhaps economically, a majority of the youthful or first-time factory workers reported life improvement that went beyond the economic. Many, especially the youth, were referring to new feelings of independence and self-esteem, but many older women simply feel that daily life on a factory assembly line is a better way of occupying the day than the more traditional women's work roles they had known before.*

Personal Impact: Independence and Self-Esteem

Almost a third of the new workers (8 of 28) volunteered comments suggesting that the work had changed their lives because it had strengthened them. Among the eight youthful workers, half of whom made such comments, the emphasis was on their new independence. Some had moved out

* It is worth noting that these "traditional women's work roles" of women in the sample do not include any store operators or market vendors, the only traditional women's work roles that avoid the social isolation of home, farm, and paid domestic work.

of the homes of their parents into the households of older married siblings or of aunts and uncles. In their new households, they were treated more as paying boarders than children, since they contributed to the household's support and otherwise filled adult roles. Both because they had money and because the heads of their new households were more likely than parents to "not butt into my life," these young women feel themselves more in control of their lives. Such feelings of new independence may seem unremarkable, common as they are to young adults everywhere who start to earn their own living. But these are new feelings and new experiences for small-town Peruvian women, for whom "starting out on their own" was in point of fact not traditionally a very common experience. Unless they work in factories, women who stay in small towns like Santa do not leave the households of their parents except to enter the households of their husbands. Even that amount of independence is normally delayed until after several years of married life, spent as a subordinate domestic helper in the household of parents or of in-laws.

One young woman, who had come from the Sierra to live with her aunt and work in the asparagus plant, spoke rather movingly in her interview of how strong and independent she feels, "now that I see money, my own money, in my hands." Though she feels proud of having "my own money," she does not in fact spend much of it on herself, contributing some to support the household where she now resides and sending most of the rest back to the Sierra so that her parents, "can maintain my brothers in school."

Older women who commented on the psychological difference that their employment had made in their life emphasized more their new feelings of self-esteem:

Q. Do you think that your life has changed since you work in the asparagus factory?

A. Yes, because I lose myself in my work. And it has made me realize that I am not only good for washing and cooking, but for making something of myself in my work.

Other older women similarly reported that their jobs had made them feel useful, that by earning money that had come to feel more important in their family.

While studies of rural men who go to work in factories for the first time have traditionally reported a trade-off, giving up the independence and autonomy of family farming or artisanal self-employment for the greater security and higher income of factory work, none of these new working women report feeling the same kind of ambivalence. For all of those who comment on the issue, factory work increases their feelings of independence and autonomy at the same time as it increases their income.

Personal Impact: Work Dissatisfaction

Though it is true that a significant proportion of the new workers are pleased with almost everything about their work, this group is nevertheless only a minority. Asked to name the worst aspects of work in the asparagus plant, for example, nine of the new workers (28 percent) were unable to think of anything negative at all (see Table 23). Significantly, all but one of these fully satisfied employees held a permanent position. In contrast, only one contract employee (4 percent) and one experienced worker (7 percent) had nothing bad to say.

The most popular "worst aspect" of the job was its low rate of pay, mentioned by 47 percent (20 of 43) of the respondents. In all categories of workers, about half of each group complained about how little they are paid. Other sources of complaint were working conditions of various sorts, most frequently having to do with the necessity of working in water or the company's stinginess in providing new protective equipment (rubber aprons, gloves, boots) which the management had reluctantly agreed to supply after negotiations with the Grievance Committee. Another complaint mentioned by many of the peelers concerned the contact dermatitis which most workers develop after a short time as peelers, the result of the skin's natural sensitivity to prolonged contact with acids in the asparagus. The company provides peelers with a set of rubber gloves every two months, but the gloves do not last that long. Peeling thousands of asparagus stalks a day, holding each stalk in one gloved hand while paring it with a sharp knife held in the other, the worker soon finds her rubber gloves shredded.

But all of the complaints were relatively minor compared to the emotions aroused by the disputes over pay. A main cause of these complaints has to be the comparison with the fish canning factories. The asparagus plant is the only factory employer in the area that pays its workers by the day; all the rest have piece rate pay systems. Though work in fish canning plants, according to the women who had worked in them, is harder, dirtier, smellier, generally more unpleasant, and a bus ride away, it is nevertheless more remunerative. With the fish plants' piece rate systems, the average worker earned slightly more than the daily minimum wage, and those who worked hardest could earn considerably more. Therefore, women whose friends and relatives work in the fish plants, or who

themselves once worked there, feel relatively deprived by the lower wage level of the asparagus plant. By a similar mechanism, women who used to work on farms feel relatively advantaged by the same rate of pay. Unfortunately for the company, the fish plants are much more widely accepted than the farms as a reference point for women's wages.

Another cause for the dissatisfaction over pay must be the stagnating standards of living experienced by these workers and their families, even though most of these households send more of their members out to earn wages in the paid economy than ever before. This issue was already discussed in the previous section on the plant's economic impact on its employee households. Already mentioned, also, were other possible causes for the higher levels of dissatisfaction quite loudly expressed by half the workers in this survey: earlier incidents of managerial misconduct toward the workers and the system of temporary contracts.

Another possible factor, much mentioned by management in interviews, would be the work of "political agitators," who are visibly active in the town of Santa, as they are throughout the Chimbote area, and indeed all over Peru. Because of Peru's recent history, the ideologies and activities of its recent governments, many have come to perceive the world from a highly politicized perspective, or as they themselves would put it, with a highly developed sense of "class consciousness." Since the asparagus plant employs such a high proportion of the town's youths and young adults, it was perhaps inevitable that a significant minority of their work force shares this perspective. The successful organization of the sitdown strike over a not-too-burning issue like Christmas bonuses indicates not only a

generalized level of discontent, as previously described, but is also prima facie evidence of the existence of capable and probably experienced organizational leadership within the work force.

Probably reflecting this consciousness and the success of this local leadership, nineteen percent (8 of 43) of the respondents in this random survey carried out their interviews almost in the manner of a political education session. A few found offensive the very notion of questions that assumed work in the asparagus plant had a best as well as a worst aspect. More than one took the opportunity to explain to Ms. Noriega, the resident research assistant on the project, that the very existence of a privately owned asparagus plant was exploitative, a device to syphon the results of the hard work of Santa Valley farmers and workers from Ancash to at least as far as Lima, if not to some behind-the-scene foreign imperialists. Workers who hold such views are unlikely to be satisfied with their wages, almost no matter what level or system of compensation their private employer chooses. Partly, these attitudes reflect their holders' participation in, and awareness of, wider debates that have taken place in the town since the asparagus plant was first constructed.

Community Impact: Employment of Women, Unemployment of Men.

Agroindustria del Santa is by far the largest employer of Santa residents, taking in five times as many as the largest fish canning plant in Coishco, six times as many as the largest nearby farm cooperative. In July, its production workers earned $29,680 (S/12,614,000), down slightly from previous months when total employment was higher.

Most Santa households earn their living from farming or fishing, small scale and informally organized occupations which make actual total employment hard to calculate. There are no reliable statistics regarding either population or employment in Santa, so the precise impact of this much employment and this amount of wages is hard to calculate. Based on a total of 1,500 households in the greater Santa area and a labor force participation rate of 1.7 workers per household, both exceedingly rough estimates, then the Santa residents employed by the company in July equalled 10 percent to 13 percent of the town's total labor force. Calculating from local employment estimates, instead of from population, the plant employs 35 percent to 40 percent of the Santa residents who are full-time employees. By either measure, the gross economic impact of the company's employment should be clearly noticeable.

But, according to interviews with leaders of the community, this is not the case. There has been no economic impact that has been discernible to them as casual observers. Once again, the reason for this lack of dramatic impact is the deteriorating economic context. Although the asparagus plant has added sharply to the town's total employment and total income, other recently important sources of employment have been just as sharply declining. Most importantly, the cooperative farming sector once employed hundreds more workers than it presently does. As with Amauta, the asparagus growing cooperative analyzed in Chapter 6, these cooperatives now limp along in near-bankruptcy, employing a small percentage of the nonmember workers that they once employed in the days when the agricultural credit and production assistance flowed freely into the collective farming sector from various government programs. Similarly, various governmental

and private development, assistance, planning, and service agencies used to employ more than 100 Santa residents in relatively comfortable quasi-bureaucratic positions. Most of these agencies are now gone, fewer than 20 such positions remain in the town. The real impact of the asparagus plant's 300 new jobs for Santa residents, therefore, has been not to expand the local economy by that much but to maintain total employment at its previous level, preventing what would have otherwise been a catastrophic decline.

The plant workers, however, are seldom the same people who have been laid off by the farm coops and bureaucratic agencies. For one thing, they are a different sex. The plant employs nine women for every man, the agencies and cooperatives once employed at least nine men for every women. Between the asparagus plant and the fish canneries, at least 60 percent of the town's workers who hold full-time employment are now women.

Because of this shift, the mayor, the lieutenant governor, the various elected neighborhood leaders who were interviewed--all discounted, at least to some extent, the importance of the asparagus plant's employment. Needless to say, all of these officials were men. In their opinion, the town has never had an unemployment problem for women, because of the fish canneries in Coishco. Although the income that the women employees bring home from the asparagus plan is given a certain due importance, these men assume that there are compensating negative impacts on the families of so much employment in a local economy where most men are, if not unemployed, underemployed and unable to earn the minimum wage.

The town itself, they say, has no unemployment problem for women. This argument takes on added force with the observation that the company

must now bus in almost 20 percent of its female production workers from Chimbote. Ending women's employment problems would seem to be a highly positive impact on the community, but the town "fathers" do not agree that attracting women out of their households into the factory is an unambiguously positive result. For women who really needed to work, they imply, the Coishco canning plants already provided sufficient opportunity. It is men, they say, who really need the employment. The town has a growing crime problem, which much preoccupies these leaders, and they believe that the lack of employment opportunities for young men is an important contributing cause of the social problem.

They also believe that the lopsided employment profile is breaking up families. According to this argument, men are forced to leave Santa for long periods of time to find work elsewhere. Women, meanwhile, must work in the factories to help support the household, and children are left neglected and unattended. This also, they think, contributes to the increasing crime rate. Empirical evidence for these suggestions, however, cannot be found in this research. Of the 43 households in the plant employee survey, only two contain men whose occupation or search for work has taken them out of town, one a construction laborer and the other a soldier. Asked to think about this issue, plant employee informants also report that, among their circle of acquaintances, it is the households of nonworking, stay-at-home women who are more likely to have men working out of town. At least within the surveyed families, men tend to stay in Santa, underemployed but earning occasional income as farm workers and artisanal fishermen.

Community Impact: The Plant as an Object of Political Controversy and Community Concern

In its new dominant position in the local labor market, the asparagus plant represents not only a shift in employment from men to women, but also a shift from the socialized sector to private enterprise. The declining sources of employment, farm cooperatives and community agencies, represented socialist, or at least non-capitalist, models of economic organization. Products of previous national governments, they reflected those governments' ideologies and policies of economic development. Too unproductive to endure without the constant infusion of outside capital, they fell victim to the prolonged economic crisis which Peru has recently suffered. In their place has come a large scale private enterprise, part of a very large investment "group" and processor of a luxury foodstuff for export to wealthier consumers overseas.

Whereas opponents of the former military governments' policies, including those who now hold the elected and appointed positions of community leadership, believe that the cooperatives and the bureaucratic agencies have fallen from the weight of their own waste and ineptitude; supporters of socialism, who seem to include most of the more educated young people in the town, tend instead to accept some kind of a conspiracy explanation for their town's and their country's economic problems. In their view, wealthy Peruvians like the owners of the asparagus plant have used their riches and political influence to thwart the social enterprises and cooperatives and to eliminate the government programs that once supported those organizations. For them, a local economy dominated by a

large company's asparagus plant, no matter how much healthier that economy has become, represents a retreat and a return to older and less desirable work relations and forms of economic organization.

Viewing their local world from this perspective, they see Agroindustrias del Santa as a conscious conspiracy of its owners and of Peruvian governmental development agencies to: (1) encourage private asparagus producers at the expense of cooperatives, and (2) replace an existing social enterprise, Liber, with one that is privately owned.

It is hard to assess the impact of the plant's existence on these local versions of national political controversies. On the one hand, the plant is taken by some people as visible evidence of the existence of an anti-socialist conspiracy; but on the other hand, it seems quite possible that the leftist case would have been even more strengthened if the town had been left to experience the economic decay that would have been its lot had the plant not been built.

Community Impact: Local Patron and Charitable Resource

One impact of the asparagus plant favorably noted by most of the community leaders interviewed was the filling of a community service void in the town. Traditionally, local employers and people of wealth serve as sources of small donations to sponsor school pageants, patriotic parades, community clean-up projects, and the like. Until the coming of the asparagus plant, the town of Santa had no such local patrons to whom the organizers of such events could turn. The owners of local haciendas were the last group that had filled this function, and their estates had been

expropriated more than ten years before. The subsequently important employers, cooperatives and government agencies, could not or would not take on such a role. Nor, in fact, were they often asked to do so, since such paternalism on their part seemed somehow inappropriate, not part of their role. Employers who were asked to contribute, in the years before the asparagus plant opened, were the fish canning plants of Coishco. They seldom, however, responded to these appeals. Though they employed many Santa residents, they owed their patronage to Coishco.

But now that the asparagus plant has opened up, said one school teacher involved in many of these community activities, the town had someone to fill this role. The elementary school adjacent to the plant, in particular, has benefited from these charitable contributions. The company supplied the paint which school personnel used to refurbish the building, and it has also funded various school events and extracurricular activities. As important as the actual money, said the school teacher in his interview, has been the willingness of plant management, Mr. Castillo and Mr. Pena, to attend these various community functions which their resources have helped to promote. When the plant management attends and makes a few introductory remarks at a dedication or an opening ceremony, this emphasizes the importance of the event, ensures that the rest of the town leadership will also attend, and generally reinforces the sense of pride and accomplishment among those in the community who have worked to make such events possible. Thus encouraged, local boosters and neighborhood leaders are motivated to greater efforts, and the activities they promote

result in an increased sense of community pride and community integration among Santa's residents.

Community Impact: Commerce

In its local market, canvassing its residential neighborhoods, especially congregating along the street in front of the plant, Santa's small vendors have greatly increased their activity. There are more people involved as vendors, mostly women although some are men, and those who do this work now tend to work longer hours and for more days of the week. This increased scale of tiny local commerce might be attributable to the increased demand of local consumers, fueled by the asparagus plant's wages and their multiplier effects within the local area. But it is just as easily argued that the increase in vendors is due, not to a greater market demand, but to a greater labor supply. Traditionally, according to local informants, the number of vendors in the market swells in times of economic recession. As unemployment rises, more people become desperate enough to pass their days in the market selling small quantities of farm goods and foodstuffs. Since this activity rewards its least capitalized participants with daily earnings much lower than the minimum wage, an increase in vendors indicates, primarily, a lack of alternative sources of income.

Probably, both factors have contributed. Total sales volume has increased due to the wages of the asparagus plant's worker-consumers, and at the same time more people are motivated by a lack of alternatives to enter this kind of work. The women who sell prepared foods on the street in front of the plant, however, can be attributed more directly to the growth of their market. The noon meal, when plant employees are at work,

is the most important meal of the day. Indeed, for most of the production workers and their families it is the only full and balanced meal of the day. There is a concessionnaire in the plant, and in fact the management plans to build an even more elaborate cafeteria, but most employees prefer to patronize the much cheaper food sellers in the street.

Another form of commerce, the neighborhood general store, has even more obviously benefited from the opening of the asparagus plant. Such stores have always sold their goods at a slight premium over the prices available to consumers in the market, and especially in the Chimbote market, which Santa residents regularly attend. The additional mark-up is inevitable, since these small proprietors participate in no wholesale distribution systems. Most simply take the bus to Chimbote, purchase their goods at the same market stands available to their own customers, and resell the product at a slightly higher price from their "stores," normally the front room of a private house not unlike all the others in their pueblo joven neighborhood. Customers have two reasons to patronize these neighborhood stores, convenience and credit. For factory working housewives, as opposed to those who stay at home, both factors are more important than ever. The credit is both more readily granted by the store owner to a woman with a weekly paycheck and more convenient to a customer whose income now appears in one weekly lick instead of sporadic dribbles. The convenience, too, take on more importance than ever before. Women who can only do their shopping after work at night have no transportation to travel further than their neighborhood store. Likewise, if the shopping tasks are taken on by children, as they often are, the neighborhood store is a much more practicable and safe place to purchase. In the twenty months since the

plant began operations, therefore, at least one local store in every pueblo joven has expanded from a marginal, part-time housewife's enterprise into a thriving business capable of supporting its owners at a standard of living clearly superior to that of the store's customers.

CHAPTER IX

SOME IMPLICATIONS FOR MANAGING AND EVALUATING THE SOCIAL IMPACT OF AGRIBUSINESS PROJECTS

The findings of this research project, and of the previous studies of agribusiness projects sponsored by the Development Programs office of the Bureau for Latin America and the Caribbean, contain much that could be of value to those charged with the management and evaluation of AID agribusiness development projects. This social impact report is not the place for a complete discussion of all project management implications, but even a limited listing of a few key points should prove useful. The following points are based partly on the findings reported here, but also on the findings reported in three previous contracts to evaluate the social impact of AID agribusiness projects in Central America.* The issue areas discussed here are important, but they can only be a small proportion of the total project management and evaluation questions raised by this growing body of social impact research.

The precise social impact of an agribusiness subproject depends as much on the external characteristics of the socioeconomic environment as on the internal characteristics of the subproject itself. Similar subprojects have differing social consequences resulting from differences in the

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*"The Social Impact of Agribusiness: A Case Study of ALCOSA in Guatemala," A.I.D. Evaluation Special Study No. 4, July, 1981; "Evaluation of LAAD de Centroamerica," November, 1977; "Evaluation of Honduras Agribusiness Project," November, 1978.

projects' contexts. Nevertheless, it is possible to describe in general terms the kind of agribusiness subproject most likely to have a maximum positive impact on the rural poor, and to describe also the problems that such positive agribusiness subprojects are likely to encounter.

On Agribusiness Economics and Small Farmer Benefits

The evidence of subsequent research continues to support the conclusion reached in the 1977 LAAD evaluation that processing or marketing projects reach the rural poor more effectively than projects involving the two other components of the agribusiness system, agricultural credit and agricultural inputs. If new contracts and new markets expand the productivity and gross income of small farmers, then local enterprises are likely to meet the increased demand for credit and inputs from these farm consumers, newly enfranchised by their increased incomes as participants in local financial and farm equipment markets. The converse is less likely to be true. Without the increased income from expanded market opportunities, any expansion of the availability of farm credit or farm inputs is unlikely to affect the small farmer whose income is too low to allow him to borrow or to buy.

Agribusiness processors who purchase their raw materials from large numbers of small farmer outgrowers, unfortunately, must operate larger and more complicated grower-service operations, and thus incur greater overhead costs, than competitors who purchase raw materials from a fewer number of larger outgrowers. For agribusiness processors to involve themselves with small outgrowers, therefore, some compensating financial inducement must be present. In the ideal case of certain labor intensive crops, small farmers

might enjoy greater productivity and lower true costs, allowing processors to offer lower purchase prices without unduly depressing their small outgrowers' net incomes. More commonly, poor farmers are willing to sell their produce at lower prices than larger farmers, even if such prices result in lower rates of profit than more heavily capitalised large farmers would find acceptable. This phenomenon has been labeled by many social science observers as small farmer "self-exploitation." But the concept only makes sense if it is assumed that other more profitable market opportunities, open to larger farmers, are also available to small farmers. As is indicated by small farmers' continuing voluntary participation in some processors' outgrower programs, such is seldom the case. Given the structure of economic opportunity in which small farmers find themselves, agribusiness processors offer the best economic opportunity available to many small farmer suppliers.

In still other cases, the greater overhead cost of including small farmers in an outgrower program is compensated by external incentives, such as cheaper or more readily available project financing. Presumably, this is a function of A.I.D.'s agribusiness programs, to entice such processors into benefitting the rural poor even when it might not otherwise be in a processor's economic self-interest to do so.

Among the project that make purchases from small farmers, "pioneering" projects that represent qualitatively new markets are most diversifying, most opportunity-enhancing, and most likely to have the greatest social impact. Follow-on projects may have indirect economic benefits through their influence on the structure of farm market prices (this is

especially true of "first competition" projects that introduce competition into a previously monopsony situation), but such market-linked indirect economic impacts tend to result in small quantitative improvements in previous living standards rather than qualitative transformation of life opportunities. But pioneering projects like this are riskier. In the normal operation of investment markets, they would only be undertaken if they offered a correspondingly higher profit potential. Unfortunately, this is seldom the case, except in the fantasy world of some promoters' feasibility studies.

Therefore, the type of agribusiness project that promises most benefit to small farmers, pioneering processors of small farm production, are among the riskiest of agribusiness projects. Seldom can their projected profit potential compensate for the greater risks of small farmer involvement or processor pioneering sufficiently to attract investors without other incentives. A.I.D. agribusiness development programs provide such incentives. Without such agribusiness development programs, private agribusiness enterprises are likely to favor less risky types of projects, with more potential profitability, but without the potential of such positive impacts on the rural poor. Even where such agribusiness development programs have been established, the proportion of agribusiness subproject applications that even roughly approximate this impact-maximizing type is very low, too low in fact for program managers who must usually sacrifice impact-maximizing potential in order to meet loan disbursal deadlines.

On the other hand, agribusiness project proposals of the impact-maximizing pattern (processors pioneering new crops and small farmer

purchases) are already risky enough ventures; extra requirements that force added costs in order to increase target population benefits are additional straws too likely to break the backs of such frail and fledgling camels.

On Agribusiness and Small Farm Technical Assistance

Almost as a byproduct of their outgrower operations, agribusiness processors provide a great deal of agronomic technical assistance to their farm suppliers. Such processors must have accurate information regarding plantings and predicted harvests, and the need for such information requires that company technicians be in almost constant contact with outgrowers. In the course of this administrative cooperation, formal or informal technical assistance is inevitably provided. The farmer-technician contact, at least, is mandated by the administrative requirements of the agribusiness firm and by the marketing requirements of the farmer. Unlike the more formal extension programs which have as their sole purpose the provision of technical assistance to farmers, agribusiness projects ensure that both the technician and farmer are highly motivated to stay in constant contact.

The quality of the technical assistance to the farmer has a tendency to be warped by the processor's requirements. That is, the specific advice is designed to maximize the processor's, rather than the farmer's, benefits from the cultivation. Agricultural technicians employed by a local cooperative are in a better position to frame their advice for the maximum long-term benefit of the farmer, but few such organizations can afford to pay a "professional" level of salary and fringe benefits. As a result,

technical assistance programs operated and financed directly by farmer organizations have succeeded only when they employ highly motivated technicians who regard their work more as a participation in a social movement than as a professional responsibility.

On balance, it appears that processors' subprojects are generally very successful as modes of transmitting technical assistance to small farmers. Although the specific content of the assistance is sometimes not in the maximum interest of the farmer, the assistance is generally useful and successfully communicated. Also, the assistance is relatively inexpensive, since the technicians and their means of transportation are necessary administrative components of any outgrower program; the technical assistance that they render is an almost-free side effect of these administrative requirements.

On the Methods of Impact Evaluation

The findings in this report highlight the potential significance of three issues that affect the impact evaluation of agribusiness projects: the economic context, the agribusiness normalization process, and the validity of survey results.

Since the normally assumed context of a development project is economic growth or development, participants' maintenance of the economic status quo, of their previous standard of living, is normally considered an indication of a project's failure to achieve its objectives. In this case, however, participants live in an economic context of contraction, of an inflation rate that has for the past five years eroded their standards of

living. In this case, maintenance of the status quo, of a previous standard of living and pattern of consumption, indicates a project's success, since it has been able to compensate for negative economic trends that would otherwise have victimized project participants. This is but one particularly striking example of the necessity for impact evaluation to monitor a project's external environment as well as its internal results.

The agribusiness normalization process has been adequately defined and described in the body of the report. It remains only to be emphasized how much such a phenomenon can affect attitudes toward the project. Evaluators aware of the concept could perhaps discount both the glowing appreciations of project success that characterize the early phase of an agribusiness projects and also the griping complaints that are sure to arise later.

This research, and also the previous agribusiness impact evaluations contracted by the Development Programs office of the Bureau for Latin America and the Caribbean, have used the research technique known as data triangulation, the combination of several data collection techniques to gather distinct types of data. In this case, data was collected by means of examination of company records, direct observation of selected events and important interaction patterns, specialized in-depth interviews with key participants and selected informants, and three separate sets of survey interviews with distinct segments of the project's target population. Data triangulation calls for the cross-method validation of research results, in which findings from one data source are accepted as valid only if consistent with other kinds of data.

The findings which have most frequently failed this validation procedure have invariably been the survey results. Surveys are most valid when monitoring present attitudes, as in a public opinion poll, and least valid when used to collect information regarding past behavior. Thus peasants who are successfully growing a crop which they had never even heard of before the agribusiness arrived, such as asparagus or broccoli, report that they have never received technical assistance from the company. Similarly, a small farmer who has just finished showing off his newly acquired field or newly constructed house will in his survey interview indicate that he has received no economic benefits from his new agribusiness markets.

Such defects in the survey method are well known to specialists in this research technique, who have developed a variety of methods to improve and verify the validity of survey research. But these techniques are generally costly and time consuming. To employ them in every impact evaluation would result in the evaluation effort becoming lengthier and more expensive than the development of the project itself. So quicker and rougher survey techniques invariably characterize these kinds of applied field research efforts. Their quantitative results are just as apparently precise as those of a more properly validated survey effort, but the consumers of these survey evaluations must be aware of the suspect validity behind the apparent precision. In the hands of a researcher knowledgeable enough to resolve correctly the occasional apparent contradictions in the different types of data, triangulation is a reasonable and relatively inexpensive means of improving the validity of such research.

APPENDIX:

TABLES

Tables 1

Farm Size

a. Farm Size, Total Hectares

	Santa		Viru		Total	
	n	%	n	%	n	%
< 5 has.	0	0	3	19	3	6
6-10	11	32	2	13	13	26
11-15	19	56	7	44	26	52
16-20	3	9	2	13	5	10
> 20 has.	1	3	2	13	3	6
Total	34	100	16	102	50	100

	Santa	Viru	Overall
Mean	12.1	13.8	12.7
Median	11	11	11

b. Farm Size, Hectares Brought Under Cultivation

	Santa		Viru		Total	
	n	%	n	%	n	%
< 5 has.	6	18	5	31	11	22
6-10	18	53	3	18	21	42
11-15	8	24	6	38	14	28
16-20	1	3	1	6	2	4
> 20 has.	1	3	1	6	2	4
Total	34	101	16	99	50	100

	Santa	Viru	Overall
Mean	8.7	11.3	9.6
Median	9	10.5	9

Source: Asparagus Grower Survey

Table 2

How Farm Was Obtained

	Santa		Viru		Total	
	n	%	n	%	n	%
Agrarian Reform	12	35	3	19	15	30
Occupation (squatting)	10	29	4	25	14	28
Purchase	8	24	2	12	10	20
Inheritance	1	3	5	31	6	12
Private Gift	2	6	2	12	4	8
(No Answer)	1	3	0	0	1	2
TOTAL	34	100	16	99	50	100

Source: Asparagus Grower Survey

Table 3

Number of Years Farming This Parcel

	Santa		Viru		Total	
	n	%	n	%	n	%
< 6	6	18	2	12	8	16
6-10	16	47	3	19	19	38
11-15	8	24	6	38	14	28
16-20	3	9	0	0	3	6
21-25	0	0	0	0	0	0
> 25	0	0	3	19	3	6
(No Answer)	1	3	2	12	3	6
TOTAL	34	101	16	100	50	100

	Santa	Viru	Total
Mean	9.3	14.4	10.8
Median	8	11	10

Source: Asparagus Grower Survey

Table 4

Occupation Prior to Acquisition of Present Parcel

	Santa		Viru		Total	
	n	%	n	%	n	%
Farm Laborer	12	35	5	31	17	34
Farmer, Elsewhere	7	21	0	0	7	14
Various Urban Jobs	13	38	5	31	18	36
Fisherman	2	6	0	0	2	4
None; Born There	0	0	6	38	6	12
TOTAL	34	100	16	100	50	100

Source: Asparagus Grower Survey

Table 5

Type of Farm Labor Force:
Family Members or Hired Laborers

	Santa		Viru		Total	
	n	%	n	%	n	%
Family Farmers:						
Family only, no hired laborers	5	15	3	19	8	16
Family labor primary, hired labor supplementary	10	29	7	44	17	34
Farm Entrepreneurs						
Hired labor, one family supervisor	17	50	6	37	23	46
Hired labor, no daily owner supervision	2	6	0	0	2	4
TOTAL	34	100	16	100	50	100

Source: Asparagus Grower Survey

Tables 6

Number of Hired (Non-Family) Farm Workers

a. Farm Location

	Santa		Viru		Total	
	n	%	n	%	n	%
0	5	15	3	19	8	16
1-2	10	29	3	19	13	26
3-4	10	29	6	38	16	32
5-6	2	6	3	19	5	10
7-8	5	15	0	0	5	10
9-10	1	3	1	6	2	4
11-12	1	3	0	0	1	2
Total	34	100	16	101	50	100

	Santa	Viru	Overall
Mean	3.5	3.3	3.4
Median	3	3	3

b. Farm Size

	entre-preneurs		farmers		Total	
	n	%	n	%	n	%
0	0	0	8	32	8	16
1-2	4	16	10	40	14	28
3-4	11	44	4	16	15	30
5-6	3	12	2	8	5	10
7-8	5	20	0	0	5	10
9-10	1	4	1	4	2	4
11-12	1	4	0	0	1	2
Total	25	100	25	100	50	100

	Farm entre-preneurs	Family farmers	Overall
Mean	4.8	2.1	3.4
Median	4	2	3

Source: Asparagus Grower Survey

Table 7

Size of Asparagus Plantings

	Santa		Viru		Total	
	n	%	n	%	n	%
< 6	17	50	6	38	23	46
6-10	14	41	7	44	21	42
> 10	3	9	3	19	6	12
TOTAL	34	100	16	101	50	100

	Santa	Viru	Overall
Mean	6.4	8.2	7
Median	6	6	6

Source: Asparagus Grower

Table 8

Other Crops Cultivated

	Santa		Viru		Total	
	n	%	n	%	n	%
None	9	26	8	50	17	34
Alfalfa	17	50	1	6	18	36
Corn	11	32	7	44	18	36
Fruit trees	7	21	1	6	8	16
Sweet potatoes	1	3	4	25	5	10
Potato	3	9	0	0	3	6
Beans	4	12	0	0	4	8
Peanuts	2	6	0	0	2	4
Mixed auto-consumption	3	9	2	13	5	10
Other	4	12	2	13	6	12

Source: Asparagus Grower Survey

Tables 9

Importance of Asparagus: Percentage of a Farmer's Total Cultivated Hectares Given Over to Asparagus

a. Farm Location

	Santa		Viru		Total	
	n	%	n	%	n	%
100%	11	32	6	38	17	34
76-99%	6	18	1	6	7	14
51-75%	9	26	5	31	14	28
26-50%	8	24	4	25	12	24
0-25%	0	0	0	0	0	0
TOTAL	34	100	16	100	50	100

	Santa	Viru	Overall
Mean	74%	73%	74%
Median	75%	65%	70%

b. Farm Size

	Farms <6 has. cultivated		Farms 6-10 has. cultivated		Farms >10 has. cultivated		Total	
	n	%	n	%	n	%	n	%
100%	8	73	6	29	3	17	17	34
76-99%	1	9	2	10	4	22	7	14
51-75%	1	9	7	33	6	33	14	28
26-50%	1	9	6	29	5	28	12	24
0-25%	0	0	0	0	0	0	0	0
TOTAL	11	100	21	101	18	100	50	100

	<6 has.	6-10 has.	>10 has.	Overall
Mean	87%	77%	73%	74%
Median	100%	70%	57%	70%

Source: Asparagus Grower Survey

Table 10

Asparagus Productivity
Farmers' Estimates of Their Own Yields
(per Hectare, latest harvest)

	Santa		Viru		Total	
	n	%	n	%	n	%
< 1 metric ton	1	4	0	0	1	3
1.00-1.49	7	27	1	10	8	22
1.50-1.99	10	38	1	10	11	31
2.00-2.49	4	15	4	40	8	22
2.50-2.99	2	8	0	0	2	6
3.00-3.49	1	4	3	30	4	11
3.50-3.99	1	4	0	0	1	3
> 4 metric tons	0	0	1	10	1	3
TOTAL*	26	100	10	100	36	101

	Santa	Viru	Total
Mean	1.75	2.52	1.96
Median	1.50	2.30	1.80

* Includes only farmers with two or more harvests already completed.

Source: Asparagus Grower Survey

Table 11

Costs, Incomes, Profits per Hectare of Asparagus[1]
(July 1981)

Planting		
Tractor rental	S/ 32,000	$ 75.29
Labor--20 days @ S/915 ($2.15) Bedding and Transplanting	18,300	43.00
Seedlings--15,800 @ S/6 (1.4¢)	94,800	223.06
Misc expenses[2]	9,300	21.88
Sub-total	154,400	363.29
Interest until 1st harvest @ 47.5%/yr.	73,300	172.47
TOTAL	S/ 227,700	$ 535.76
Cultivation until first harvest (11 mos.)		
Fertilizer	S/ 67,300	$ 158.35
Pesticides	24,000	56.47
Labor--68 days @ S/915 ($2.15) Irrigating, Fertilizing, Weeding	62,300	146.59
Misc. expenses[2]	102,500	241.18
Sub-total	256,100	602.59
Interest until 1st harvest @ 47.5%/yr.	55,100	129.65
TOTAL	S/ 311.200	$ 732.24
Cultivation between harvests (4 mos.)		
Tractor rental	S/ 10,000	$ 23.53
Fertilizer	32,900	77.41
Pesticides	14,000	32.94
Labor--31 days @ S/915 ($2.15) Irrigating, Fertilizing, Weeding	28,400	66.82
Misc. expenses[4]	55,900	131.53
Sub-total	141,200	332.24
Interest until next harvest @ 47.5%/yr.	11,300	26.59
TOTAL	S/ 152,500	$ 358.82[3]
Harvests		
Tractor rental	S/ 10,000	$ 23.52
Labor--86 days @ S/915 ($2.15)	78,700	185.18
TOTAL	S/ 88,700	$ 208.70

Table 11

Summary of production costs		
Planting	S/ 227,700	$ 535.76
First cultivation (11 mos.)	311,200	732.24
Subsequent cultivations (4 mos.)	152,500	358.82
Harvests	88,700	208.70
Cost per harvest, 2nd to 20th harvest		
Planting, (S/227,700 ÷ 20)	S/ 11,385	$ 26.79
1st cultivation, (S/311,200 ÷ 20)	15,560	36.61
Between-harvest cultivation	152,500	358.82
Harvest	88,700	208.70
TOTAL	S/ 268,145	$ 630.93[3]
Income per harvest		
Production of 2,500 kgs. asparagus		
49% First quality: 1225 kg. @ S/165	S/ 202,125	$ 475.59
26% Second quality: 650 kg. @ S/125	81,250	191.18
25% Third quality: 625 kg. @ S/90	56,250	132.35
TOTAL	S/ 339,625	$ 799.12
Net profit per harvest		
Total income	S/ 339,625	$ 799.12
Total costs	-268,145	-630.93
	S/ 71,480	$ 168.19
Net profit per hectare per year (2 harvests)	S/ 142,960	$ 336.38

Notes.

1. Company calculations understate the actual average time until first harvest (thus the actual average interest paid), and overstate present actual yields (thus the actual average gross income). On the other hand, planting and early cultivation expenses are based on present costs rather than those actually incurred 18-36 months ago (when prices were 50-75% less than now), and all legally required expenses are included even though very few farmers actually pay them all (e.g., water fees, legal minimum wages plus all fringe benefits for farm laborers). Corroborative field data suggest that these and other smaller errors offset each other sufficiently to accept these figures as the best available approximations.

2. Miscellaneous expenses include: water fees, irrigation system maintenance, tool depreciation, an administration fee, and legally required fringe benefits equal to 53% of labor costs.

3. Dollar totals may not sum, due to rounding errors in the Sol/Dollar exchange calculations.

4. Includes fringe benefits for both cultivation and harvest labor.

Source: ASAGRO company records, grower interviews.

Table 12

Annual Farm Income for Family Farm Asparagus Growers.[1]

Imputed labor wages (488 days @ S/915, $2.15)	S/ 446,520	$ 1,050.64
Imputed fringe benefits (53% of above)	236,656	556.84
Imputed farm administration compensation	48,000	112.94
Net profits	571,840	1,345.51
Total farm income	S/1,303,016	$ 3,065.92[2]

Notes:

1. Derived from Table 11, based on the following assumptions: 2 harvests per year; 2,500 kgs/ha/harvest, of which 49% first quality, 26% second, 25% third; median family farm asparagus planting size of 4 hectares; all labor by family members.

2. Dollars may not sum, due to rounding error in Sol-Dollar exchange calculations.

Table 13

Family Structures, Asparagus Growers

	Santa		Viru		Total	
	n	%	n	%	n	%
Single Parent Nuclear	1	3	1	6	2	4
Nuclear	20	58	13	92	33	66
Nuclear plus Siblings/Cousins	6	18	1	6	7	14
Joint (Sibling Nuclear Families)	3	9	0	0	3	6
Extended (3 Generations)	4	12	1	6	5	10
TOTAL	34	100	16	100	50	100

Source: Asparagus Grower Survey

Table 14

Family Size, Asparagus Growers

	Santa				Viru				Total			
	All Ages		Adults		All Ages		Adults		All Ages		Adults	
	n	%	n	%	n	%	n	%	n	%	n	%
2	0	0	7	21	0	0	2	12	0	0	9	18
3-4	2	6	11	32	1	6	6	38	3	6	17	34
5-6	9	26	8	23	4	25	4	25	13	26	2	24
7-8	8	23	5	15	6	38	2	12	4	28	7	14
9-10	8	23	3	9	4	25	1	6	12	24	4	8
11-12	3	9	0	0	1	6	1	6	4	8	1	2
13-14	3	9	0	0	0	0	0	0	3	6	0	0
15-16	1	3	0	0	0	0	0	0	1	2	0	0
Total	34	99	34	100	16	100	16	99	50	100	50	100

Source: Asparagus Grower Survey

Table 15

Summary Comparison of Farm Entrepreneurs and Family Farmers
(Median or Modal Responses)

	Santa		Viru	
	Farm Entrepreneurs (n = 19)	Family Farmers (n = 15)	Farm Entrepreneurs (n = 7)	Family Farmers (n = 9)
How Farm Acquired	Agrarian Reform	Occupation	Inheritance	Agrarian Reform
Most recent former occupation	Urban Worker	Farm Worker	No Other	Farm Worker
Total Farm Size: Total Cultivated	14:10 has.	10:8 has.	11:11 has.	14:9 has.
Per Cent (of total) Cultivated	72%	80%	100%	64%
Asparagus Plantings	7 has.	4 has.	6 has.	6 has.
Per Cent (of Cultivated) Asparagus	70%	50%	54%	67%
Farmer's Age	45	40	39	56
Education: Male	Some Secondary	Some Primary	Complete Primary	Some Primary
Education: Female	Some Primary	Some Primary	Complete Primary	Some Primary
Family Size	8	8	7	8

Source: Asparagus Grower Survey

Tables 13

Personal Characteristics of Asparagus Growers

a. Age, Male and Female Heads of Households.

	Male		Female		M & F	
	n	%	n	%	n	%
< 30	1	2	10	20	11	11
30-39	15	31	19	39	34	35
40-49	15	31	7	14	22	23
50-59	11	22	11	23	22	23
60-69	4	8	1	2	5	5
> 70	2	4	1	2	3	3
Total	48	98	49	100	97	100

b. Education, Male and Female Heads of Households.

	Male		Female		M & F	
	n	%	n	%	n	%
None	8	17	14	29	22	23
Some Primary	14	29	12	24	26	27
Complete (6 yrs) Primary	16	33	15	31	31	32
Some Secondary	2	4	0	0	2	2
Complete (3 yrs) Secondary	6	12	6	12	12	12
Secondary Plus	1	2	0	0	1	1
(No Answer)	1	2	2	4	3	3
Total	48	99	49	100	97	100

Source: Asparagus Grower Survey

Tables 17

Farm Workers: Personal Characteristics

a. Age

	n	%
15-19 years	8	19
20-29 years	22	54
30-39 years	4	10
40-49 years	2	5
50-59 years	4	10
> 60 years	1	2
Total	41	100

b. Sex

	n	%
Male	40	98
Female	1	2
Total	41	100

c. Family position

	n	%
Live alone	7	17
Live with parents	8	20
Live with other relatives	7	17
Married head of household	19	46
Total	41	100

Source: Asparagus Farm Worker Survey

Tables 18

Farm Workers: Residential and Migrational Patterns

a. Birthplace

	n	%
Sierra	29	71
Santa, Viru	10	24
Other coastal valleys	2	5
Total	41	100

b. Present residence

	n	%
On employer's farm	20	49
Split: worker on employer's farm, family elsewhere	7	17
Elsewhere	14	34
Total	41	100

c. Future migration plans

	n	%
Remain in present location	27	66
Return to place of origin	8	20
Move on elsewhere	6	15
Total	41	100

d. Future occupational expectations

	n	%
Continue as farm worker	28	68
Become independent farmer	9	22
Seek non-farm work	4	10
Total	41	100

Source: Asparagus Farm Workers Survey

Tables 19

Farm Workers: Employment Characteristics

a. Length of time with present employer

	n	%
< 1 month	11	27
2-5 months	10	24
6-11 months	4	10
12-23 months	8	20
24-35 months	3	7
> 36 months	5	12
Total	41	100

b. Work here every day?

	n	%
Yes	35	85
No	6	15
Total	41	100

c. Work with asparagus every day?

	n	%
Yes	26	63
No	15	37
Total	41	100

Source: Asparagus Farm Workers Survey

Tables 20

Origin and Residence of Non-Family Farm Labor

a. Origin.

	Santa		Viru		Total	
	n	%	n	%	n	%
Migrants from Sierra	48	40	31	59	79	46
Neighbors	65	54	22	42	87	51
(No Answer)	7	6	0	0	7	4
Total	120	100	53	101	173	101

b. Residence.

	Santa		Viru		Total	
	n	%	n	%	n	%
On-farm residence provided by owner	51	42	17	32	68	40
Laborers provide own residence elsewhere	69	57	36	68	105	60
Total	120	99	53	100	173	100

Source: Asparagus Growers Survey

Tables 21

Plant Employees: Personal Characteristics

a. Age.

	Youth		Experienced workers		First-time workers		Total	
	n	%	n	%	n	%	n	%
18-19 years	4	50	0	-	1	5	5	12
20-24 years	3	38	10	67	5	25	18	42
25-29 years	1	13	2	13	5	25	8	19
30-35 years	0	-	0	-	6	30	6	14
36-40 years	0	-	2	13	3	15	5	12
41-45 years	0	-	1	7	0	-	1	2
Total	8	101	15	100	20	100	43	101

b. Marital Status

	Youth		Experienced workers		First-time workers		Total	
	n	%	n	%	n	%	n	%
Single	8	100	5	33	0	-	13	30
Married	0	-	9	60	19	95	28	65
Widowed or separated	0	-	1	7	1	5	2	5
Total	8	100	15	100	20	100	43	100

Tables 21 (continued)

Plant Employees: Personal Characteristics

c. Family Position

	Youth		Experienced workers		First-time workers		Total	
	n	%	n	%	n	%	n	%
Live with parents	6	75	4	27	2	10	12	28
Live with other relatives	2	25	4	27	3	15	9	21
Married, head of household	0	-	7	47	15	75	22	51
Total	8	100	15	101	20	100	43	100

d. Number of children living at home

	Youth		Experienced workers		First-time workers		Total	
	n	%	n	%	n	%	n	%
0	8	100	6	40	1	5	15	36
1	0	-	0	-	4	20	4	9
2	0	-	4	27	3	15	7	16
3	0	-	1	7	3	15	4	9
4	0	-	1	7	2	10	3	7
5	0	-	2	13	4	20	6	14
6	0	-	1	7	2	10	3	7
>6	0	-	0	-	1	5	1	3
Total	8	100	15	101	20	-	43	100

Source: Plant Employee Survey

Tables 22

Plant Employees: Family Economic and Occupational Characteristics

a. Months working at asparagus plant

	Youth		Experienced workers		First-time workers		Total	
	n	%	n	%	n	%	n	%
1-3 months	1	13	5	33	4	20	10	23
4-6 months	4	50	2	13	6	30	12	28
7-12 months	1	13	3	20	2	10	6	14
13-18 months	0	-	2	13	2	10	4	9
19 months*	2	25	3	20	6	30	11	26
Total	8	101	15	99	20	100	43	100

* Since plant opened.

b. Stable or temporary contract employment status

	Youth		Experienced workers		First-time workers		Total	
	n	%	n	%	n	%	n	%
Temporary contract	5	63	9	60	9	45	23	53
Stable	3	38	6	40	11	55	20	47
Total	8	101	15	99	20	100	43	100

c. Number of wage-earners in household

	Youth		Experienced workers		First-time workers		Total	
	n	%	n	%	n	%	n	%
One	0	-	2	13	0	-	2	5
Two	4	50	11	73	19	95	34	80
Three	1	13	1	7	1	5	3	7
Four	3	38	1	7	0	-	4	9
Total	8	101	15	100	20	100	43	101

Tables 22 (continued)

Plant Employees: Family Economic and Occupational Characteristics

d. Occupations of other household wage-earners

	Youth n	%	Experienced workers n	%	First-time workers n	%	Total n	%
Family farmers	4	27	1	6	3	14	8	15
Farm workers	3	20	0	-	9	43	12	23
Factory workers	5	33	7	44	4	19	16	31
Fishermen	2	12	0	-	2	10	4	8
Other occupations	0	-	6	38	1	5	7	13
Traditional self-employed*	1	7	2	13	2	10	5	10
Total	15	100	16	101	21	101	52	100

* Home-based crafts and sales occupations.

e. Consumption categories: How wages are spent

	Youth n	%*	Experienced workers n	%	First-time workers n	%	Total n	%
Food	6	75	15	100	18	90	39	91
Family clothing	1	13	5	33	7	35	13	30
Household goods	1	13	2	13	7	35	10	23
Personal clothing	8	100	4	27	6	30	18	42
Entertainment	1	13	1	7	1	5	3	7
Children's schools	0	-	1	7	1	5	2	5
Savings	1	13	1	7	0	-	2	5
Send money home	2	25	2	13	0	-	1	2
Don't know (gives to husband)	0	-	1	7	0	-	1	2
Total responses	20		32		40		92	

* Per cent of respondents, not of responses; most respondents gave multiple answers.

Source: Plant employee survey

Tables 23

Family role adjustments, and attitudinal responses to work

a. Have you had problems in your family as a result of your work?

	Youth n	%	Experienced workers n	%	First-time workers n	%	Total n	%
Yes	1	13	4	27	7	35	12	28
No	7	88	11	73	13	65	31	72
Total	8	101	15	100	20	100	43	100

b. Who helps with your domestic responsibilities?

	Youth n	%	Experienced workers n	%	First-time workers n	%	Total n	%
Not applicable*	8	100	2	13	0	-	10	23
No one, she works full "double shift"	0	-	0	-	8	40	8	19
Mother, or mother-in-law	0	-	2	13	2	10	4	9
Daughter	0	-	2	13	2	10	4	9
Males: spouse or son	0	-	1	7	3	15	4	9
Other woman in household	0	-	5	33	3	15	8	19
Other woman, lives nearby	0	-	1	7	2	10	3	7
Paid domestic help	0	-	2	13	0	-	2	5
Total responses	8	100	15	99	20	100	43	100

* Respondent is youth, states she has no such responsibilities.

c. "Worst aspects" of work in plant.*

	Youth n	Youth %**	Experienced workers n	Experienced workers %	First-time workers n	First-time workers %	Total n	Total %
Low pay	3	38	8	53	9	45	20	43
Dermatitis (from asparagus)	2	25	5	33	1	5	8	9
Working conditions	0	-	4	27	2	13	7	16
Badly treated by management	0	-	1	7	0	-	2	5
Work too hard	0	-	1	7	0	-	1	2
Nothing, no bad aspects	2	25	1	7	7	35	10	23
Don't know, or no answer	2	25	1	7	1	5	4	9
Total responses	9		22		21		52	

* "Best aspect" was unanimously the plant's nearby location.

** Percent of respondents, not of responses; some respondents gave multiple answers.

d. Has working in the asparagus plant changed your life?

	Youth n	Youth %*	Experienced workers n	Experienced workers %	First-time workers n	First-time workers %	Total n	Total %
No, it has not	2	25	9	60	4	20	15	35
Worse now, more work and family conflicts	0	-	1	7	2	10	3	7
Better now, partial relief from economic deprivation	4	50	2	13	7	35	13	30
Better now, new work role preferable to old	1	13	0	-	10	50	11	26
Better now, more independence, self-esteem, etc.	4	50	0	-	4	20	8	19
No answer	0	-	3	20	0	-	3	7
Total responses	11		15		27		53	

* Percent of respondents, not of responses; some respondents gave multiple answers.

Tables 23 (continued)

Family role adjustments, and attitudinal responses to work

e. Has working in the asparagus plant changed your home (hogar)?

	Youth n	Youth %*	Experienced workers n	Experienced workers %	First-time workers n	First-time workers %	Total n	Total %
No, it has not	2	25	2	13	1	5	5	12
Worse, economically	0	-	1	7	0	-	1	2
Worse, children neglected, disputes with spouse	0	-	2	13	8	40	10	23
Better, economically	5	63	5	33	15	75	25	59
Better, children can attend school, home tensions lessened	1	13	0	-	5	25	6	14
No answer	1	13	6	40	1	5	8	19
Total responses	9		16		30		55	

* Percent of respondents, not of responses; some respondents gave multiple answers.

f. What are your future work plans?

	Youth n	Youth %	Experienced workers n	Experienced workers %	First-time workers n	First-time workers %	Total n	Total %
Keep on working at asparagus plant	6	75	13	87	15	75	34	79
Seek other work	1	13	1	7	2	10	4	9
Return to home, quit outside work	0	-	1	7	2	10	3	7
Don't know	1	13	0	-	1	5	2	5
Total responses	8	101	15	101	20	100	43	100

Source: Plant employee survey.

Table 24

Comparison of Plant Employee Characteristics: Median or Modal Responses

	Youth	Experienced workers	First-time workers	Total
Age	20	24	28	24
Marital status	Single	Married	Married	Married
Family position	Live with parents	Head of household	Head of household	Head of household
Number of children	0	2	3	2
Months in plant	5 months	7 months	7 months	6 months
Contract status	Temporary	Temporary	Stable	Temporary
Number of family wage-earners	3	2	2	2
Occupations of family	Factory worker	Factory worker	Factory worker	Factory worker
Wages used to buy	Food, personal clothing	Food	Food	Food
Family objects to work?	No	No	No	No
Who shares housework?	Housework not her responsibility	Other women in household	No one	(No modal response)
Worst aspect of job	Low pay	Low pay	Low pay	Low pay
Work at plant changed life?	Better: economically, psychologically	No	Better: economically	No
Work at plant changed home?	Better: economically	Better, economically	Better: economically	Better economically
Future work plans	Stay on at plant	Stay on at plant	Stay on at plant	Stay on at plant

Source: Plant Employee Survey